

# **Ameren Central Illinois Public Service Company Workforce Study Analysis**



**Prepared For  
Illinois Commerce Commission**

**October 2008**

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**Ameren Central Illinois Public  
Service Company  
Workforce Adequacy Analysis  
Report**

**Prepared For**

**Illinois Commerce Commission**

**For Jacobs Consultancy**



**Frank DiPalma**

**October 2008**

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# 1.0 Executive Summary

## Background

The Illinois Commerce Commission (ICC, Commission, or Agency) retained Jacobs Consultancy Inc. (Jacobs Consultancy) to conduct a workforce study analysis of Ameren Central Illinois Public Service Company (AmerenCIPS, Company or Utility), as specified by the Illinois Public Utilities Act, Section 4-602.

On December 31, 1997, Central Illinois Public Service Company Incorporated (parent of Central Illinois Public Service Company) and Union Electric Company, merged creating Ameren Corporation and its principal operating companies—AmerenCIPS and Ameren UE (“UE”).

AmerenCIPS’ electric service territory covers 576 communities in 70 counties, serving approximately 400,000 customers. The majority of AmerenCIPS’ customer base is located in rural areas, evidenced by providing service to 7% of the state’s population while covering over 35% of its surface area.

## Objective and Scope

The objective of the study is to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality, reliability, and restoring service in the Utility’s Illinois service territory. The analysis also examines the total number of contractor employees in the same manner as the in-house analysis.

The study is broken down into two tasks:

- **Task 1**—The first step in determining the adequacy of the Utility’s workforce was to compute and compare the yearly workforce ratios during the 1995–2006 timeframe for the pertinent job classifications by service area, district, division, or region.
- **Task 2**—The second step in the study consisted of performing a detailed examination of AmerenCIPS’ workforce adequacy critical to maintaining quality, reliability, and restoring service in the Utility’s Illinois service territory.

As specified in Illinois Public Utilities Act, Section 4-602, that critical workforce is defined as:

1. In-house workers, commonly referred to as “linemen”
2. Meter service or repair employees
3. Customer service call-center employees

## Approach

Our approach to Task 1—developing the workforce ratio report—consisted of collecting, rationalizing and performing an initial analysis of workforce ratios. In particular, we requested data from AmerenCIPS covering the 1995-2006 time periods on the levels of both in-house and contracted staff in each job classification or job title critical to maintaining quality, reliability, and restoring service. Specifically, data were collected and ratios were calculated for:

1. In-house workers, which consists of line workers and substation workers
2. Meter service or repair employees, which includes of meter technicians, meter readers and meter on-off employees
3. Customer service call-center staff, which includes residential, business and lead customer service agents, as well as mission control and other support service specialists
4. Contracted or outsourced employees used to support employees in categories 1, 2, or 3

Our approach to Task 2—assessing workforce adequacy—started with establishing a key study understanding, the definition of the word “adequacy”. Adequacy is defined as the quality of being able to meet a need satisfactorily or being sufficient for the end in view.<sup>1</sup> Applying this definition to the Illinois Public Utilities Act, Section 4-602, suggests that a spectrum of staffing possibilities exists. Extremes range from providing sufficient in-house staffing that permits timely completion of all work requirements with no overtime and no use of external resources to depending heavily upon outside contractors to satisfy workload requirements that a static or shrinking in-house workforce is unable to complete in a timely fashion. Jacobs Consultancy does not believe either of these extremes can be proven to be economic or effective considering all stakeholder needs. In-house workforce adequacy should lie in the middle ground and comprise a blend of resources that cost-effectively maintains reasonable system reliability and service quality, while utilizing outside resources to meet peak workload requirements.

In our workforce adequacy analysis, we examined the existing mix of in-house and contractor workforce in the context of the job functions, level of involvement, and meeting the criteria expressed above. Consequently, we judged the adequacy of the overall workforce on the basis of: system performance, levels of in-house overtime, use of contractors, existing in-house age and skills demographics, workforce plans, customer satisfaction statistics, and workload backlog.

To develop the Workforce Study Analysis report, we collected various related documents, conducted interviews of key individuals, visited several AmerenCIPS facilities and inspected numerous distribution assets, including substations. Specifically, in undertaking this analysis,

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<sup>1</sup> <http://www.thefreedictionary.com/adequacy>

we conducted 57 interviews with over 100 individuals representing both Ameren Illinois Company management and the bargaining units, and reviewed 124 AmerenCIPS documents.

Our detailed analysis includes comparisons of workforce levels against historical reliability indices as well as preventive and corrective maintenance orders indicative in determining workforce adequacy. We also reviewed construction results of work performed by in-house and outsourced labor. Additionally, during the interview phase of our analysis, we interviewed several union officials and bargain unit members. The union representatives articulated various concerns that added additional focus to our workforce adequacy study.

Jacobs Consultancy's study of AmerenCIPS' workforce adequacy focused on a number of discrete assessments:

- **Maintenance and Operations**—included the dispatch function, the call center during normal operations, minor outages and major outages, emergency escalation procedures, troubleshooting, coordination with other emergency agencies, mutual aid arrangements, crew mobilization, utilization of contractor forces, maintenance planning, maintenance cycles, maintenance work accomplishment, backlogs, workplace barriers, staffing adequacy, crew sizes, system inspections, vegetation management, quality control, and use of contractors. We also examined the level of technology enablers employed to support this function.
- **Training and Safety**—included the new apprentice and continuing training programs for line workers, meter staff, and call center customer service representatives. We also reviewed the importance of safety in AmerenCIPS's organization, related training and the safety results achieved.
- **Quality Review**—included observations of AmerenCIPS's electric distribution facilities to determine the quality of work performed both by in-house and outsourced personnel. We also examined the quality of outsourced work accomplished by various contracting methods, including lump sum and time and equipment.
- **Call Center**—included call center metrics to gauge the level of customer support. We reviewed call center changes, emergency escalation procedures, public agency communication provisions, and customer satisfaction surveys. We also examined the level of technology enablers employed to support this function.

## Conclusions

To assess workforce adequacy in each of these areas, we examined as appropriate: staffing levels, use of contractors, overtime, work order backlog, system reliability performance, and customer satisfaction. We then balanced our analysis with AmerenCIPS's philosophy of

maintaining an overall level of in-house employees needed to perform core base load work and complete workload peaks and valleys with contractors, while subcontracting lower-skilled work. This section contains our conclusions for each AmerenCIPS workforce: line and substation workers, the call-center staff and meter service employees.

## **Line and Substation Workers**

The staffing level for linemen has steadily declined over the 1995 to 2004 period, but seems to have leveled out somewhat in 2005 and 2006 with a complement of 250. While AmerenCIPS has recognized that its workforce is aging and has made efforts to attract and retain apprentices to replace retirees and other workforce decreases, there are too few apprentices in the pipeline to accommodate expected retirements over the near and long term.

The staffing level for journeymen substation electricians and technicians dipped in the late 1990s, but AmerenCIPS proactively added apprentices from 1995 that have contributed to a recovery of staffing levels.

AmerenCIPS faces the same difficulty as many utilities in attracting experienced linemen and substation workers and therefore depends heavily on apprentice programs. One source for new apprentices is meter readers, some of whom are being displaced with the implementation of AMR. However, with a potentially growing backlog of work requests for line workers and an aging workforce, AmerenCIPS will need to carefully consider its near and long-term resource requirements.

## **Meter Services Employees**

The meter services staff complement comprising in-house and contract workers has declined slightly over the 1995 to 2006 period. However, the ratio of customers per meter services employee increased from 2,500 customers per employee in 1995 to 3,400 customers per employee in 2006. The meter services group has increasingly made use of contractors, particularly for the AMR project, to avoid in-house staff reductions. We conclude that AmerenCIPS' meter services' workforce is adequate to provide required services.

## **Call Center Staff**

The Company staffs the call center in accordance with the flow of call volume and uses technology to enhance the call center's capability to service customers in an effective and efficient manner. The technologies employed include: Customer Service System, High Volume outage Call Answering System, Integrated Voice Response Unit System, Electronic Workforce Management & Real Time Adherence System, Automatic Call Distributor, Call Quality Monitoring & Survey System, and Computer Telephony Integration System. AmerenCIPS' call center internal goals and key performance indicators (KPIs) are satisfactory and increasing,

indicating that the center is managed in an effective and efficient manner. AmerenCIPS' call center in the last five years has seen a decrease in customer satisfaction surveys conducted by Market Strategies International, Inc, J.D. Power & Associates, and Customer Contact Index (CCI). This could be a result of such issues as multiple storms and/or rate increases that are beyond the direct control of the call center.

## Recommendations

Based on our analysis, we conclude that the overall adequacy of AmerenCIPS' workforce has generally been in harmony with its philosophy to maintain an overall level of in-house employees needed to perform core base load work and complete workload peaks and valleys with contractors while subcontracting lower skilled work. However, specifically with respect to line workers, given a constant but potentially increasing backlog of work requests for line workers, a high level of overtime and declining numbers of linemen, coupled with an aging workforce and the need to plan ahead based on a 3-year apprentice program, we offer the following overarching recommendation:

Ameren should update the Open Position Action Plan annually to continue to reflect the workforce needs as specified in the Towers Perrin Work Force Projection Study. Once established, the Open Position Action Plan should be aggressively pursued to increase the electric field workforce.

In addition to the above recommendation, we make a number of other recommendations throughout the report. These have been summarized in Appendix A.

## 2.0 Introduction

### 2.1 Background

#### 2.1.1 Philosophy on Outsourcing

Every electric utility is expected to extend its service to meet the needs of a growing population. Power needs to be provided in a reliable, safe, and timely fashion. To maintain high standards of service quality and safety, utility managers traditionally have opted for the control of an in-house workforce. As a result, many utilities historically did not have to rely on outside employees to provide support to its staff or rely on others to meet its customers' needs. However, today many regulated distribution utilities have developed strategies to shift risk, reduce costs, and refocus attention on core functions.

At AmerenCIPS, outsourcing has primarily sought increased flexibility in addressing fluctuating workload volumes and subcontracting of lower skilled work. Driven by the need to maintain in-house knowledge of the distribution and transmission system and the desire to have first responders be Company staff to ensure quality service and help preserve brand recognition, distribution system contractors are primarily used to fill workload peaks and perform lower-skilled work. Currently, about 8% of AmerenCIPS' distribution system line work is outsourced.

This approach and level of outsourcing represents a modest amount from our experience, and places certain obligations on the Utility's management as well as impacts on the Utility's workforce. Management must ensure that the quality of the work completed is consistent with customer service standards, that the cost of the work is reasonably similar to what the work would cost if it were performed by the in-house staff, and that high-quality customer service is provided, while the workforce may see a reduction in the total number of employees and in the breadth of job skills.

Refer to Appendix B for a more complete discussion on the utility industry outsourcing philosophy. In Appendix C, we include: an overview of the events that occurred during the study period that have helped to shape organized labor at AmerenCIPS; a brief review of the history of outsourcing and the type of work activities contracted; and highlight the Contractor Work language contained in the IBEW Local Union 702 agreement.

#### 2.1.2 Service Territory

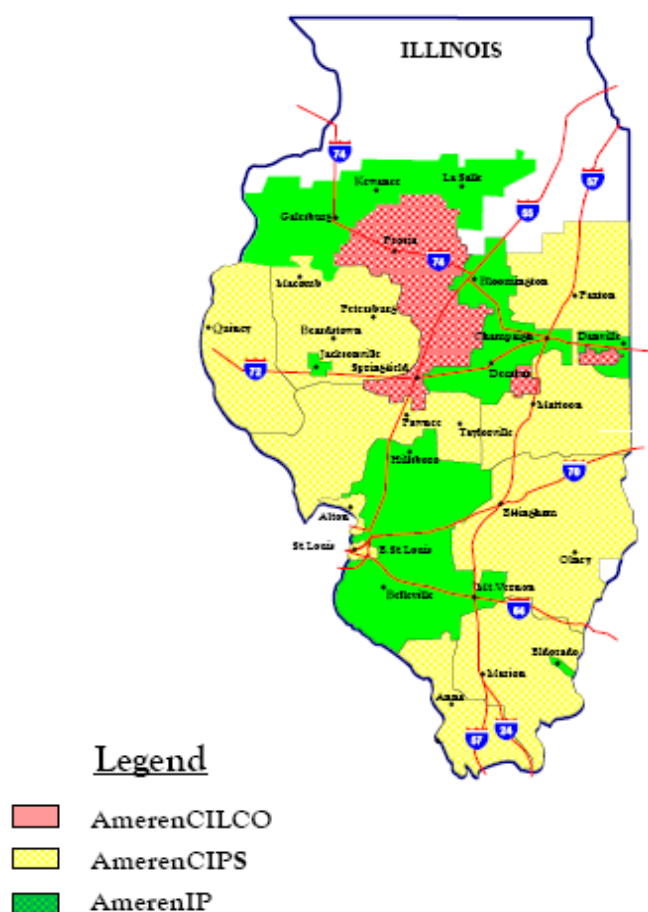
AmerenCIPS' electric service territory covers 576 communities in 70 counties, serving approximately 400,000 customers. The majority of AmerenCIPS' customer base is located in rural areas, evidenced by providing service to 7% of the state's population while covering over 35% of its surface area. The distribution system consists of approximately 12,000 miles (89%) of overhead conductor and 1,400 miles (11%) of underground circuits. In 2005, AmerenUE's

service territory and electric distribution and transmission assets in Illinois was transferred to AmerenCIPS. The previous UE Illinois includes portions of four counties, 19 communities, with approximately 1,400 distribution circuit miles in the Alton and East St. Louis area. AmerenCIPS' service territory is illustrated in Figure 1.

AmerenCIPS' field forces currently operate out of the following active operating centers: Anna, Beardstown, Benton, Canton, Carbondale, Carthage, Effingham, Gilman, Harrisburg, Jerseyville, Macomb, Marion, Mattoon, Olney, North Pana, Paxton, Petersburg, Pittsfield, Quincy, Robinson, Tuscola, and Virden<sup>2</sup>. The Alton and East St. Louis areas were absorbed into the AmerenCIPS organization as of May 2005.

AmerenCIPS has one call center located in Pawnee that services both gas and electric customers and has been virtual with AmerenCILCO's Peoria call center since 2005. AmerenCIPS is also moving toward being fully virtual with AmerenIP's Decatur call center.

**Figure 1 - AmerenCIPS Service Territory**



<sup>2</sup> DR-097

## 2.2 Objective and Scope

The Illinois Commerce Commission (ICC, Commission, or Agency) retained Jacobs Consultancy Inc. (Jacobs Consultancy) to conduct a workforce adequacy analysis of AmerenCIPS, as specified by the Illinois Public Utilities Act, Section 4-602:

Sec 4-602. Electric utility workforce study

(a) The Commission shall conduct a comprehensive workforce analysis study of each electric utility to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in each electric utility's service territory. Each report shall contain a yearly detailed comparison beginning with 1995 and ending in 2006 of each electric utility's ratios of:

- (1) In-house workers, commonly referred to as "linemen", to customers;
- (2) Customer service call-center employees to customers; and
- (3) Meter service or repair employees to customers

The ratios shall be reported from each utility's named service area, district, division, outlying area, village, municipality, reporting point, or region. The analysis shall determine the total number of contractor employees for the same timeframe and shall be conducted in the same manner as the in-house analysis.

- (b) The Commission may hold public hearings while conducting the analysis to assist in the adequacy of the study. The Commission must hold public hearings on the study and present the results to the General Assembly no later than January 1, 2009.
- (c) An electric utility shall bear the costs of issuing any reports required by this Section and it shall not be entitled to recovery of any costs incurred in complying with this Section.

The objective of the study is to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in the Utility's Illinois service territory. The analysis also examines the total number of contractor employees in the same manner as the in-house analysis. The study is broken down into two tasks:

- **Task 1** - The first step in determining the adequacy of the Utility's workforce was to compute and compare the yearly workforce ratios during the 1995–2006 timeframe for the pertinent job classifications by service area, district, division, or region.

- **Task 2** - The second step in the study consists of performing a detailed examination of AmerenCIPS workforce adequacy critical to maintaining quality and reliability, and restoring service in the Utility's Illinois service territory.

As specified in Section 4-602, that critical workforce is defined as:

1. In-house workers, commonly referred to as linemen
2. Meter service or repair employees
3. Customer service call-center employees

## 2.3 Approach

### 2.3.1 Workforce Ratio Report

To develop the workforce ratio report, we collected, rationalized, and performed an initial analysis on workforce ratios as specified in the Illinois Public Utilities Act, Section 4-602. In particular, we requested data on the levels of both in-house and contracted staff in each job classification or job title critical to maintaining quality reliability and restoring service by examining workforce levels covering the 1995-2006 time period for:

1. In-house workers, commonly referred to as “linemen”
2. Customer service call-center employees
3. Meter service or repair employees
4. Contracted or outsourced full-time equivalent (FTE) employees for each of the above

Computing the ratio of employees to customers resulted in a very small number that is neither practical nor informative to use to assess workforce adequacy. Instead we augmented the ratio analysis by calculating the number of customers per employee.

We attempted to compute the ratios by operating center as suggested in Section 4-602 of the Illinois Public Utilities Act, but found too many data inconsistencies to draw any meaningful conclusions. With the changes in company ownership, organization structure, and integration efforts, AmerenCIPS operated over the period 1995–2006 with various operating centers. Neither the number of active operating centers nor the division to which they reported was consistent over the time period. As a result, this report will only analyze the ratios for the total AmerenCIPS workforce.

In this task, we also noted the job classifications included in each ratio analysis and identified the factors that may have affected the changes in the ratios each year.

Our approach to this task was divided into five subtasks as described below.

- **Data Collection**—We collected data emanating from the initial data requests as provided by the Utility and through our research. This information was made consistent, as practicable, and input into our web-based document control facility (eRoom).
- **Initial Analysis/Cleaning**—In this subtask, we performed our initial analysis on the data provided by AmerenCIPS to support the workforce ratio analysis. We identified any gaps or inconsistencies in the data and identified missing or questionable data. We made appropriate corrections, based on clarifications from AmerenCIPS, to the data to provide a consistent data set.
- **Additional Data Requests**—Based on our Initial Analysis/Cleaning, we formulated additional specific data requests, data explanations and other information deemed necessary for consistent data. AmerenCIPS was requested to provide responses to these additional data requests within a 10-day timeframe.
- **Data Analysis and Cleaning**—In this subtask, we incorporated the additional data received into our workforce ratio analysis model and continued data cleaning efforts to assure consistent and meaningful baseline workforce ratios to support further analysis.
- **Develop Ratio Report**—Prior to developing the reports, we coordinated with the Agency to define the workforce ratio report format and content. Following this and completion of the Data Analysis and Cleaning subtask, we proceeded to assemble the ratios and develop the final Workforce Ratio Report.

### 2.3.2 Workforce Adequacy Analysis

The Illinois Public Utilities Act, Section 4-602 states that the study is to “Determine the adequacy of the in-house staffing in each job classification critical to maintaining quality, reliability and restoring service in each electric utility service territory.”

The key word to conducting the study, then, lies in the word *adequacy*, which can be defined as the quality of being able to meet a need satisfactorily or the quality of being sufficient for the end in view<sup>3</sup>.

Applying this definition to the Illinois Public Utilities Act, Section 4-602 suggests that a spectrum of staffing possibilities exists. Extremes range from providing sufficient in-house staffing to permit timely completion of all work requirements responding to normal work load as well as responding to emergencies, with no overtime and no use of external resources to depending

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<sup>3</sup> <http://www.thefreedictionary.com/adequacy>

heavily upon outside contractors to satisfy normal and emergency workload requirements that a static or shrinking in-house workforce is unable to complete in a timely fashion.

Jacobs Consultancy does not believe that either of these extremes can be proven to be economic or effective, considering all stakeholders' interests. We believe that in-house workforce adequacy in the context of the Illinois Public Utilities Act, Section 4-602, should lie in the middle ground and comprise a blend of resources that accomplishes the following:

- Maintain reasonable system reliability and service quality
- Provide a cost-effective solution
- Use outside resources to supplement in-house resources to meet peak workload requirements
- Use outside resources to perform work efforts that require specialized equipment or specialized skill sets that are not economic to maintain in-house
- Permit in-house resources to maintain expertise and knowledge in their core business
- Utilize outside contractors to relieve in-house staff of non-core or non-critical workload
- Provide a reasonable level of regular and overtime opportunities to the in-house workforce
- Use of additional temporary outside resources to supplement in-house workforce and existing contract workers during emergencies

In our workforce adequacy analysis, we examined the existing mix of in-house and contractor workforce in the context of the job functions, level of involvement, and meeting the criteria expressed above. Consequently, we judged the adequacy of the overall workforce on the basis of:

- System performance
- Levels of in-house overtime
- Existing in-house age and skills demographics and workforce plans
- Customer satisfaction statistics
- Workload backlog

We have provided in Appendix B, an overview of general outsourcing philosophies and AmerenCIPS' specific outsourcing philosophy.

To develop the Workforce Adequacy Analysis report, we collected various related documents provided by the Company, conducted interviews of key individuals, visited several AmerenCIPS facilities and conducted a visual condition assessment on randomly selected distribution facilities. Specifically, in undertaking this analysis, we conducted 57 interviews with over 100 individuals representing both Ameren Illinois company management and the bargaining units, and reviewed 124 AmerenCIPS documents.

Our detailed analysis includes comparisons of workforce levels against historical reliability indices as well as preventive and corrective maintenance orders indicative in determining workforce adequacy. Furthermore, during the interview phase of our analysis we interviewed several union officials and bargaining unit members. The union representatives articulated various concerns that added additional focus to our workforce adequacy study.

Our study of AmerenCIPS' workforce adequacy focused on a number of discrete assessments including:

- **Maintenance and Operations**—In reviewing the operations area, we studied the dispatch function and examined linkages to the call center during normal operations and minor and major outages. We traced handling of outages and work notifications and reviewed emergency escalation procedures and provisioning of emergency operations, troubleshooting, coordination with other emergency agencies, mutual aid arrangements, crew mobilization, and utilization of contractor forces. In reviewing the maintenance function, we focused on maintenance planning, maintenance cycles, maintenance work accomplishments, backlogs, workplace barriers, staffing adequacy, crew sizes, system inspections, vegetation management, use of contractors and quality control. We also examined the level of technology enablers employed to support this function.
- **Training and Safety**—We examined new apprentice and continuing training programs for line workers, meter staff and call center customer service representatives. We sought to observe any training provided to contractors and how their capabilities were assessed. We explored the steps the Utility is taking to attract new line workers. We reviewed the importance of safety in AmerenCIPS' organization, related training and the safety results achieved, and also examined the Utility's safety performance over the 1995-2007 timeframe.
- **Quality Assurance**—The study included a review of the quality assurance and control mechanisms and processes employed by AmerenCIPS in the distribution, metering, substations, construction and line work.
- **Distribution System Condition Assessment**—This assessment involved visual observations of AmerenCIPS' electric distribution facilities through conducting a random spot inspection to determine the condition of the distribution system.

- **Call Center**—We assessed call center metrics, such as call volume, abandonment rates, and call answers statistics to gauge the level of customer support that is present. We reviewed call center changes, such as staffing, training and automation enhancements. We reviewed the process for emergency situations, emergency escalation procedures, public agency communication provisions, and customer satisfaction surveys. We also examined the level of technology enablers employed to support this.

We specifically addressed staffing adequacy in two subsections titled Staffing contained in Section 5.1 Operations and Maintenance and Section 5.5 Call Center.

## 2.4 Report Organization

Section 1.0 Executive Summary provides an overview of Jacobs Consultancy's key conclusions and recommendations. Only those recommendations identified as directly linked to workforce adequacy are presented in the Executive Summary. Several other recommendations are presented in the body of the report.

The main body of the report is divided into two sections: Section 4.0 Ratio Investigation and Section 5.0 Workforce Adequacy Analysis. In the Ratio Investigation section, we include ratio reports for linemen, meter service, and call center employees. In the Workforce Adequacy Analysis section, assessments were conducted and an analysis made into a variety of areas including operations and maintenance, training and safety, quality assurance, distribution system condition and the call center.

The Workforce Adequacy Analysis sections contain a background description for each area and an analysis of specific topics. The Findings presented represent strengths, weaknesses, opportunities and threats, which tie directly into the facts obtained from our interviews and review of documents. The Conclusions summarize and represent our assessment of the related findings and our opinion regarding proposed opportunities associated with a specific topic. In some instances, our conclusions lead to Recommendations.

## 3.0 Glossary

A glossary of terms is set out below to familiarize the reader with the acronyms and industry terms used throughout this report.

### 3.1 Abbreviations

ACD	Automatic Call Distributor
AMR	Automated Meter Reading
ASA	Average Speed of Answer
BBS	Behavior Based Safety
CAIDI	Customer Average Interruption Duration Index
CIPS	Central Illinois Public Service Company
CIS	Customer Information System
CSR	Customer Service Representative
CTI	Computer Telephony Integration
DSCADA	Distribution Supervisory Control and Data Acquisition System
ETR	Estimated Time to Restore
eRoom	Web-based document control facility
eWFM	Electronic Workforce Management & Real Time Adherence
FTE	Full-time equivalent
GIS	Graphic Information System
GPS	Geo Positioning System
HVCA	High Volume outage Call Answering
IBEW	International Brotherhood of Electrical Workers
ICC	Illinois Commerce Commission
IT	Information Technology
IVRU	Integrated Voice Response Unit
KPI	Key Performance Indicators
LIHEAP	Low Income Home Energy Assistance Program

MDT	Mobile Data Terminals
NESC	National Electrical Safety Code
NJATC	National Joint Apprentice and Training Committee
OJT	On the Job Training
OAS	Outage Analysis System
QA	Quality Assurance
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
T&E	Time and Equipment
WMIS	Work Management Information System
WO	Work Order

## 3.2 Common Industry Terms

Automated meter reading (AMR)	The technology of automatically collecting data from metering devices (water, gas, electric) and transferring that data to a central database for billing and/or analyzing.
Automatic Call Distributor	A telephone facility that manages incoming calls and handles them based on the number called and an associated database of handling instructions.
Average Speed of Answer	The timing for answering the call begins when the call is queued for the ACD queue and ends when an agent (either in the primary or overflow ACD queue) answers the call.
Behavior Based Safety	A wide range of programs which focus almost entirely on changing the behavior of workers to prevent occupational injuries and illnesses.
Capacitor	An electrical/electronic device that can store energy in the electric field between a pair of conductors.
Completely self protected transformer (CSP)	Efficiently and effectively disconnect the load from the transformer under overload conditions.
Customer Average Interruption Duration Index (CAIDI)	A distribution circuit reliability measure that represents the average time required to restore service to the average

	customer per sustained interruption.
Customer Average Interruption Frequency Index (CAIFI)	A distribution circuit reliability measure that can be used to describe trends and customer interruptions by showing the number of customers affected out of the total customer base.
Computer Telephony Integration	The use of computers to manage telephone calls.
Customer Information System	A broad set of customer, location, service, asset and financial information.
Customer Service System	A broad set of customer, location, service, asset and financial information
Electronic Workforce Management & Real Time Adherence	A suite of call center workforce management software tools
Energy Management System (EMS)	Electric transmission and generation controls and data acquisition system for managing electric flows on the transmission network and automatically adjusting generation output
Estimated Time to Restore	Represents the best information available at this time.
Full-time equivalent	Number of total hours worked divided by the maximum number of compensable hours in a work year as defined by law
High Volume Outage Call Answering	Automatically take customer electric outage telephone calls and create outage service orders that are then electronically delivered directly to the Outage Management System.
Integrated Voice Response Unit	An automated telephony system that interacts with callers, gathers information and routes calls to the appropriate recipient.
Key Performance Indicators	Quantitative measurements that help an organization measure progress towards goals and identify areas for improvement
Mobile data terminals	A computerized device used in vehicles to communicate with a central dispatch office.
National Electrical Safety Code	Standard for the safe installation of electrical wiring and equipment

National Joint Apprentice and Training Committee	Oversees uniform standards that are adopted and used nationwide to select and train qualified men and women for the electric industry.
On the job training	Employee training at the place of work while he or she is doing the actual job.
Outage management system	A computer system used by operators of electric distribution systems to assist in restoration of power.
Quality assurance	Systematic process of checking to see whether a product or service being developed is meeting specified requirements.
Recloser	A circuit breaker equipped with a mechanism that can automatically close the breaker after it has been opened due to a fault.
Regulator	A device which has the function of maintaining a designated characteristic
Substations	A subsidiary station of an electricity system where voltage is transformed from high to low or the reverse using transformers.
Supervisory Control and Data Acquisition (SCADA)	Electric transmission and generation controls and data acquisition system for managing electric flows on the transmission network and automatically adjusting generation output
System Average Interruption Frequency Index (SAIFI)	A distribution circuit reliability measure that can be used to describe trends and the average number of interruptions that a customer would experience.
Transformer	A device that transfers electrical energy from one circuit to another through inductively coupled electrical conductors.

## 4.0 Ratio Investigation

Jacobs Consultancy developed the following three ratio reports as specified in the scope of work. In the Discussion section, we explain in more detail how the data provided by AmerenCIPS was adjusted and made consistent to develop the appropriate ratios of customers to employees.

## 4.1 Ratio Reports

### 4.1.1 Linemen Employee Ratio Report

Table 1 shows the data used to compute the ratios of customers per linemen employee. Figure 2 illustrates the linemen employee ratio trend during the 1995-2006 timeframe for both in-house and contractor employees.

**Table 1 - AmerenCIPS Linemen Employee Data**

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>AmerenCIPS - All Operating Centers</b>												
Number of Customers <sup>1</sup>	322,192	326,187	329,705	329,264	333,023	336,865	335,168	335,500	336,000	336,319	402,618	403,766
Number of Employees <sup>2</sup>												
Electric Utility Foreman	28	32	32	32	32	31	32	33	31	31	27	26
Lineman Journeyman	201	187	185	175	169	168	159	159	146	150	174	165
Lineman Apprentice	16	21	19	16	11	12	23	21	12	7	9	14
Line Foreman	50	50	53	53	54	53	52	50	49	48	45	46
Relay Journeyman	11	9	9	1	1	1	1	1	1	1	1	1
Relay Technician	0	0	0	9	9	9	9	9	9	8	7	10
Substation Foreman	9	9	8	8	8	9	9	9	8	9	12	13
Substation Electrician Troublemaker	10	14	21	22	18	19	15	16	15	15	19	18
Substation Electrician	36	31	19	16	18	18	15	14	13	15	18	14
Substation Electrician Apprentice	2	0	3	4	3	4	7	7	4	4	8	11
Contract Lineman FTEs <sup>3</sup>	NA	NA	NA	NA	NA	NA	3	4	3	2	7	24
Contract Substation FTEs <sup>4</sup>	NA	NA	NA	NA	NA	NA	0	3	0	0	0	0
Total Linemen In-house Employees <sup>5</sup>	363	353	349	336	323	324	322	319	288	288	320	318
Total Linemen Contractor Employees	0	0	0	0	0	0	3	7	3	2	7	24
Total Linemen Employees	363	353	349	336	323	324	325	326	291	290	327	342
Percentage of Linemen In-house Employees	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.98	0.99	0.99	0.98	0.93
Percentage of Linemen Contractor Employees	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.02	0.07
<b>Ratios <sup>6</sup></b>												
Customers to Linemen In-house Employees	888	924	945	980	1,031	1,040	1,022	1,007	1,143	1,152	1,205	1,098
Customers to Linemen Contractor Employees	0	0	0	0	0	0	10	22	12	8	26	83
Customers to Total Linemen Employees	888	924	945	980	1,031	1,040	1,031	1,029	1,155	1,160	1,231	1,181

Source: DR-009, DR-092, DR-093

Notes:

NA = Not available

<sup>1</sup> Customers are based on year end active and inactive meter counts. Customer counts in 1995 and 1996 were extrapolated from 1994 and 1997 data. Customer counts in 2002 and 2003 were approximated due to unstable data sources. Alton and East St. Louis customers are included in 2005 and 2006.

<sup>2</sup> Employee data represents AmerenCIPS' best efforts estimate of the end of year staffing levels. Alton and East St. Louis employees are included in 2005 and 2006.

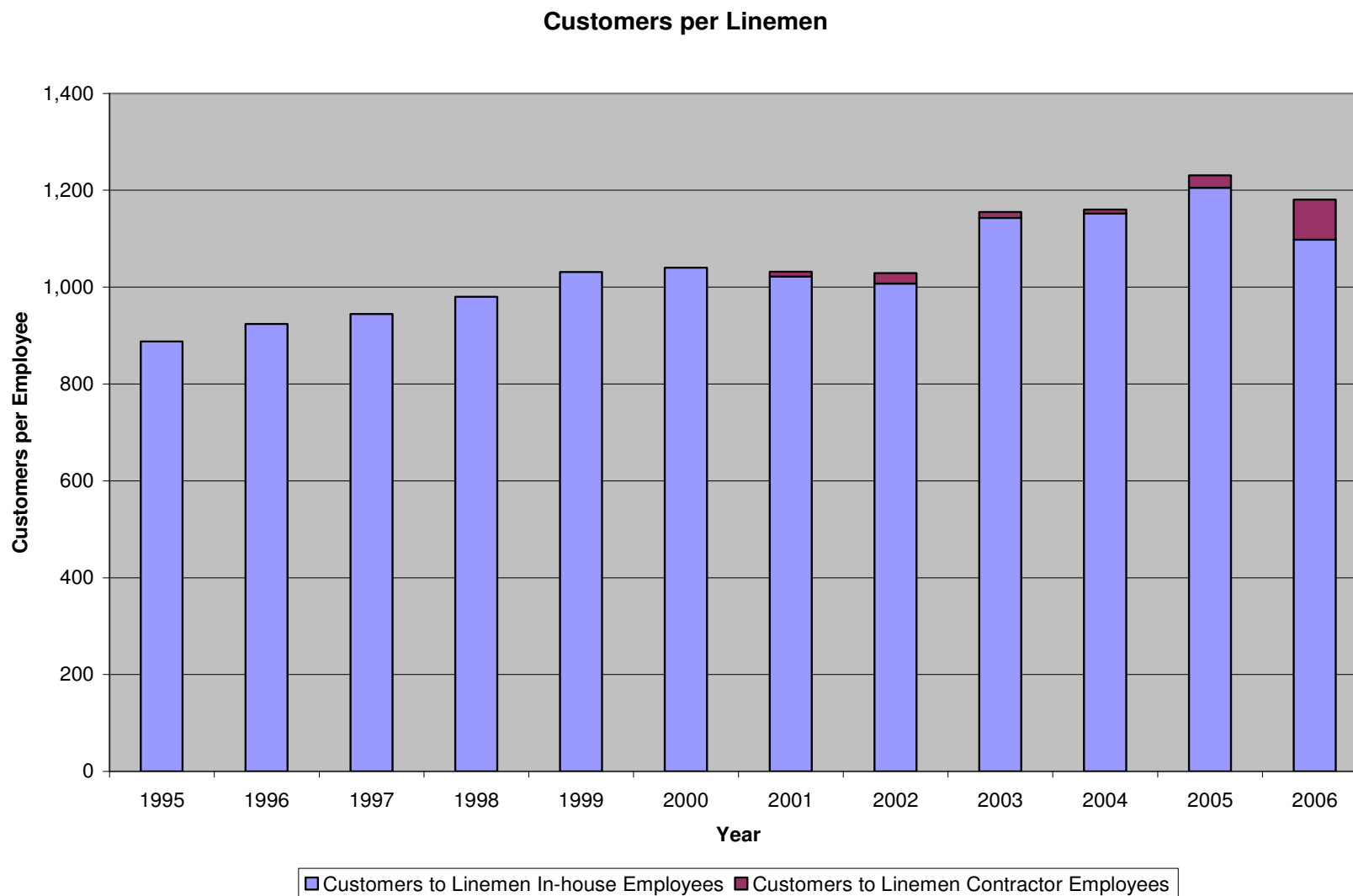
<sup>3</sup> For electric distribution and substation construction work, contractor invoice data for 2001-2006 was provided on an annual basis and a rough estimate of contractor staffing levels was developed by utilizing \$90/hr for 2005/2006 and dividing by 2080 hours/year. Subsequent year's staffing levels were developed by reducing the \$90/hour by 3% per year. The data for years 1995-2000 were not available. Because of contract limitations, AmerenCIPS believes virtually no contractors were utilized.

<sup>4</sup> FTE equivalents less than 1 are not included in the ratio analysis. To the best of AmerenCIPS's knowledge, missing invoice data for 2001-2006 is reflective of minimal or no use of contractors.

<sup>5</sup> Total Linemen In-house Employees does not include supervisors, managers, or engineers.

<sup>6</sup> The ratio of customers to employees is calculated instead of employees to customers as specified by Illinois Public Utilities Act, Section 4-602.

Figure 2 - AmerenCIPS Customers per Linemen Ratios



## 4.1.2 Call Center Employee Ratio Report

Table 2 shows the data used to compute the ratios of customers per call center employee. Figure 3 illustrates the call center employee ratio trend during the 1995–2006 timeframe for both in-house and contractor employees.

**Table 2 - AmerenCIPS Call Center Employee Data**

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Pawnee Call Center</b>												
<b>Electric Customers</b> <sup>1</sup>	322,192	326,187	329,705	329,264	333,023	336,865	335,168	335,500	336,000	336,319	402,618	403,766
<b>Gas Customers</b> <sup>1</sup>	168,038	170,122	172,585	178,962	175,203	175,771	174,968	174,900	174,900	174,992	192,739	192,063
<b>Total Customers</b> <sup>2</sup>	490,230	496,309	502,290	508,226	508,226	512,636	510,136	510,400	510,900	511,311	595,357	595,829
<b>Number of Employees</b> <sup>3</sup>												
Customer Service Representatives <sup>4</sup>	0	53	53	45	53	47	59	56	50	48	46	52
Total Call Center In-house Employees <sup>5</sup>	0	53	53	45	53	47	59	56	50	48	46	52
Total Call Center Contractor Employees <sup>6</sup>	0	0	0	0	0	0	0	7	7	7	7	12
Total Call Center Employees	0	53	53	45	53	47	59	63	57	55	53	64
Percentage of Call Center In-house Employees	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.88	0.87	0.87	0.81
Percentage of Call Center Contractor Employees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.12	0.13	0.13	0.19
<b>Ratios</b> <sup>7</sup>												
Customers to Call Center In-house Employees	0	9,364	9,477	11,294	9,589	10,907	8,646	7,201	7,862	8,113	9,750	7,564
Customers to Call Center Contractor Employees	0	0	0	0	0	0	0	900	1,101	1,183	1,484	1,746
Customers to Total Call Center Employees	0	9,364	9,477	11,294	9,589	10,907	8,646	8,102	8,963	9,297	11,233	9,310

Source: DR-009, DR-093, DR-094

**Notes:**

<sup>1</sup> Customers are based on year end active and inactive meter counts. Customer counts in 1995 and 1996 were extrapolated from 1994 and 1997 data. Customer counts in 2002 and 2003 were approximated due to unstable data sources. Alton and East St. Louis customers are included in 2005 and 2006.

<sup>2</sup> Call center employees handle all customer service calls, including both electric and gas customers. Therefore, the ratio analysis uses the total AmerenCIPS customer count instead of only the AmerenCIPS electric customers.

<sup>3</sup> AmerenCIPS Call Center did not open until 8/7/96.

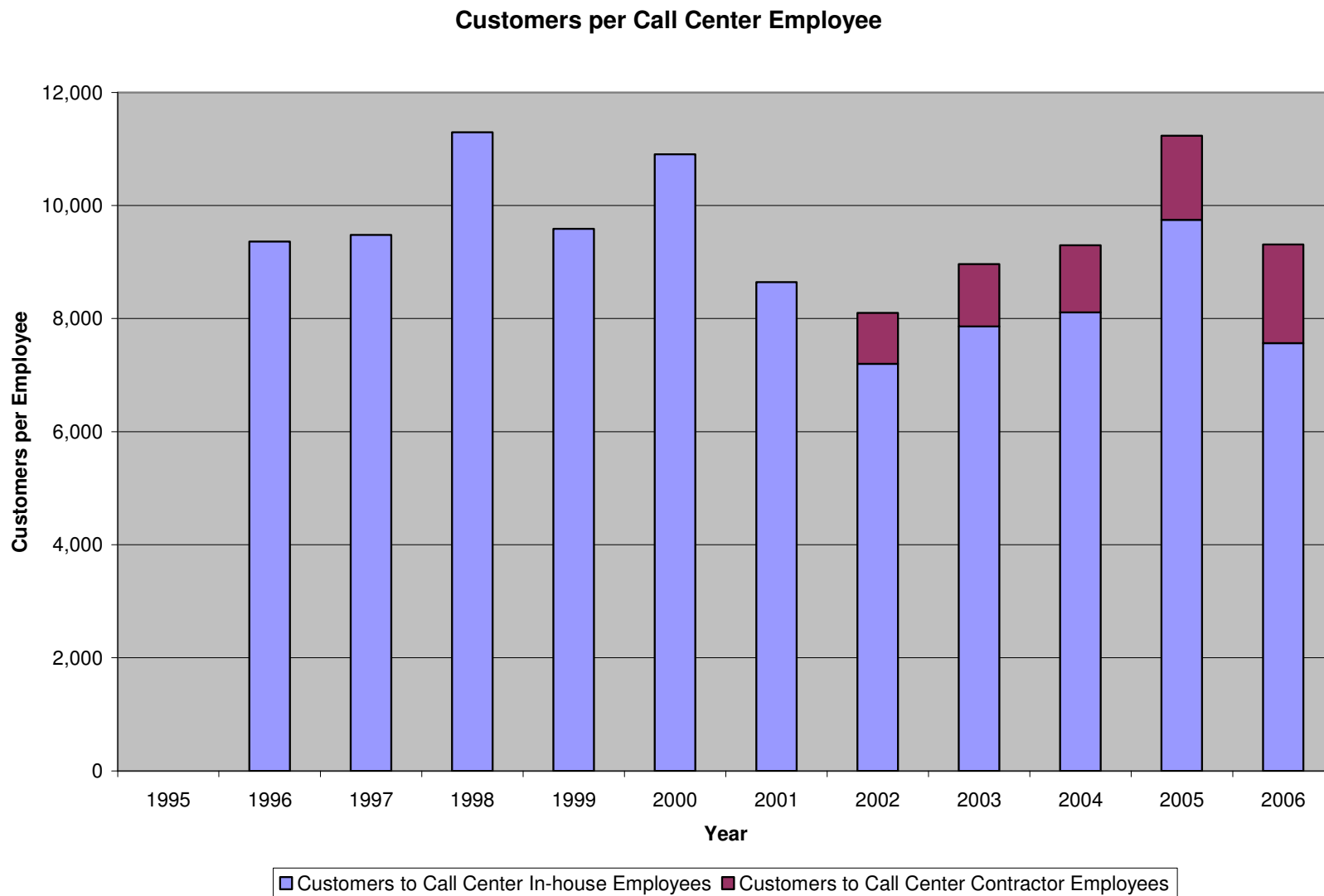
<sup>4</sup> Customer Service Representatives also include several individuals that undergo training before AmerenCIPS potentially offers them permanent employment. At various times there is a jump in CSR's because of new hire classes.

<sup>5</sup> Total Call Center In-house Employees includes Customer Service Representatives but does not include Supervisors, General Supervisors, Managing Supervisors, Manager, Director, or VP.

<sup>6</sup> AmerenCIPS Call Center did not use contract employees prior to 2002.

<sup>7</sup> The ratio of customers to employees is calculated instead of employees to customers as specified by Illinois Public Utilities Act, Section 4-602.

**Figure 3 - AmerenCIPS Customers per Call Center Employee Ratios**



### 4.1.3 Meter Service Employee Ratio Report

Table 3 shows the data used to compute the ratios of customers per meter service employee. Figure 4 illustrates the meter service employee ratio trend during the 1995–2006 timeframe for both in-house and contractor employees.

**Table 3 - AmerenCIPS Meter Service Employee Data**

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>AmerenCIPS - All Operating Centers</b>												
<b>Number of Customers <sup>1</sup></b>	322,192	326,187	329,705	329,264	333,023	336,865	335,168	335,500	336,000	336,319	402,618	403,766
<b>Number of Employees <sup>2</sup></b>												
Meter Reader Groundman	61	58	52	56	57	46	37	40	41	40	38	43
Meter Reader Apprentice	10	10	14	7	5	12	6	5	4	6	6	5
Metering Technician	0	0	0	16	13	12	13	14	14	15	16	15
Metering Technician Apprentice	0	0	1	2	1	4	3	2	3	2	2	1
Meter Foreman	2	2	2	1	1	1	0	0	0	0	0	0
Meterman Journeyman	19	22	20	2	2	1	1	1	1	1	6	6
Meterman Apprentice	1	2	3	2	2	1	1	1	0	0	0	0
Contract Meter Reader FTEs <sup>3, 4</sup>	NA	NA	NA	NA	NA	0	4	20	16	16	16	15
Total Meter Service In-house Employees <sup>5</sup>	93	94	92	86	81	77	61	63	63	64	68	70
Total Meter Service Contractor Employees	0	0	0	0	0	0	4	20	16	16	16	15
Total Meter Service Employees	93	94	92	86	81	77	65	83	79	80	84	85
Percentage of Meter Service In-house Employees	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.76	0.80	0.80	0.81	0.82
Percentage of Meter Service Contractor Employees	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.24	0.20	0.20	0.19	0.18
<b>Ratios <sup>6</sup></b>												
Customers to Meter Service In-house Employees	3,464	3,470	3,584	3,829	4,111	4,375	4,839	3,068	3,392	3,363	3,880	3,912
Customers to Meter Service Contractor Employees	0	0	0	0	0	0	317	974	861	841	913	838
Customers to Total Meter Service Employees	3,464	3,470	3,584	3,829	4,111	4,375	5,156	4,042	4,253	4,204	4,793	4,750

Source: DR-009, DR-092, DR-093

Notes:

NA = Not available

<sup>1</sup> Customers are based on year end active and inactive meter counts. Customer counts in 1995 and 1996 were extrapolated from 1994 and 1997 data. Customer counts in 2002 and 2003 were approximated due to unstable data sources. Alton and East St. Louis customers are included in 2005 and 2006.

<sup>2</sup> Employee data represents AmerenCIPS' best efforts estimate of the end of year staffing levels. Alton and East St. Louis employees are included in 2005 and 2006.

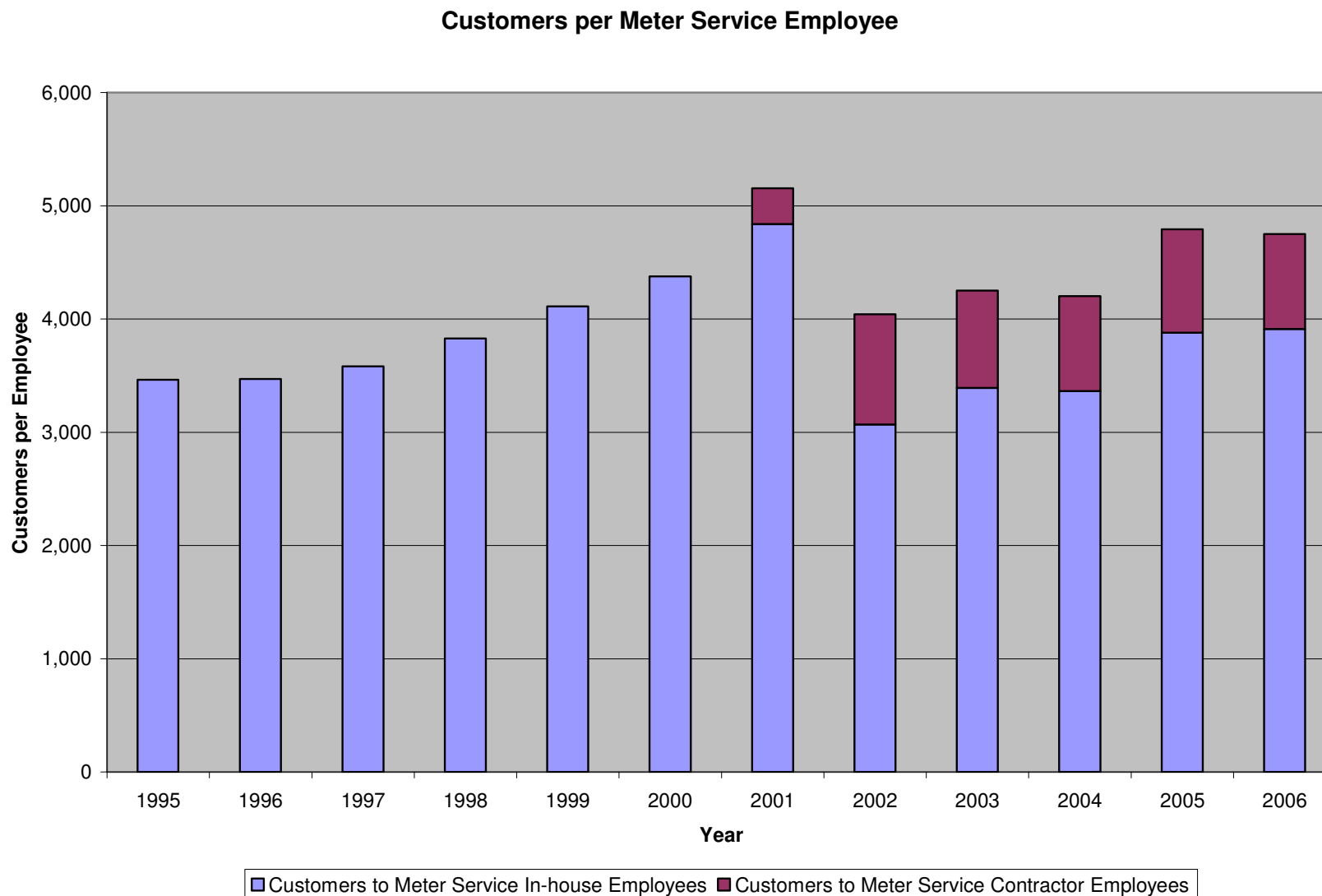
<sup>3</sup> For meter reading, contractor invoice data for 2000-2006 was provided on an annual basis and a rough estimate of contractor staffing levels was developed by utilizing the 2008 hourly rate of \$40.55/hr and dividing by 2080 hours/year. Subsequent year's staffing levels were developed by reducing the \$40.55/hour by 3% per year.

<sup>4</sup> FTE equivalents less than 1 are not included in the ratio analysis. Prior to 2000, virtually all meter reading was performed by in-house resources.

<sup>5</sup> Total Meter Service In-house Employees does not include supervisors, managers, or engineers.

<sup>6</sup> The ratio of customers to employees is calculated instead of employees to customers as specified by Illinois Public Utilities Act, Section 4-602.

**Figure 4 - AmerenCIPS Customers per Meter Service Employee Ratios**



## 4.2 Discussion

In developing the ratios of customers to employees, we reviewed the staffing level data AmerenCIPS provided by job classification, in-house employees, and contractor employees at year end for each year during the 1995-2006 time period and made several adjustments to make the ratios consistent and easier to interpret.

### 4.2.1 Linemen Employee Ratios

The current Ameren Illinois organizational structure of six operating divisions includes AmerenCIPS in divisions II, IV, V, and VI. AmerenCIPS' field forces currently operate out of the following 22 operating centers: Anna, Beardstown, Benton, Canton, Carbondale, Carthage, Effingham, Gilman, Harrisburg, Jerseyville, Macomb, Marion, Mattoon, Olney, North Pana, Paxton, Petersburg, Pittsfield, Quincy, Robinson, Tuscola, and Virden. During the 1995-2006 timeframe, AmerenCIPS' divisions were re-aligned several times and included as many as 29 operating centers. The operating centers that have been closed or consolidated and the year in which the closure or consolidation occurred are as follows: Herrin (2000), Lawrenceville (2003), Taylorville (2000), Watseka (2003), and West Frankfort (1995).<sup>4</sup>

AmerenCIPS' in-house line crews are typically assigned work by operating center, which covers a specific geographic area. Depending on the operating center work load, crews may also be assigned work outside their operating center but within the division. Occasionally, but not often, crews are headquartered outside their division during large construction projects. In-house substation crews are assigned by division.

Outsourced line crews are typically assigned work based on geographic need or by specific project. An outsourced crew typically works in one division on a project or multiple projects until the projects are finished. They then may be assigned to another division or released. Forestry or line clearance crews have been completely outsourced since 2004. They are typically assigned by circuits that are due in the upcoming trim cycle. Outsourced substation crews are assigned by project.<sup>5</sup> This makes it difficult to report contractor staffing levels by operating center.

Due to these inconsistencies in data and the consolidation of operating centers, calculating the ratios by operating centers does not help draw any meaningful conclusions. As a result, the linemen employee ratios were calculated based on the total AmerenCIPS customers and linemen employees each year.

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<sup>4</sup> DR-097

<sup>5</sup> DR-008

The total number of AmerenCIPS customers each year is based on year-end meter counts provided by the Utility. The customers and employees from the Alton and East St. Louis areas are only included in 2005 and 2006, since they were part of UE prior to May 2005. The customer counts between 2002 and 2003 are approximations due to variations in meter count data.

The Total Linemen In-house Employees is the sum of the employees in the following job classifications: Electric Utility Foreman, Lineman Journeyman, Linemen Apprentice, Line Foreman, Relay Journeyman, Relay Technician, Substation Foreman, Substation Electrician Troublemens, Substation Electrician, and Substation Electrician Apprentice. Supervisors, managers, and engineers are not included in the in-house employee counts.

The Total Linemen Contractor Employees is the sum of the Contract Linemen FTEs and Contract Substation FTEs. The Contract Linemen FTEs were calculated based on contractor invoice data provided by AmerenCIPS. For distribution and substation construction work, contractor invoice data for 2001-2006 were provided on an annual basis, and a rough estimate of contractor staffing levels was developed by utilizing \$90/hr for 2005/2006 and dividing by 2080 hours/year. Previous years' contractor staffing levels were developed by reducing the \$90/hour by 3% per year. The data for years 1995-2000 were not available; however, because of union contract limitations, AmerenCIPS believes virtually no contractors were utilized during that time. To the best of AmerenCIPS' knowledge, missing invoice data for 2001-2006 reflects minimal or no use of contractors.

The Total Linemen Employees is the sum of the Linemen In-house Employees and the Linemen Contractor Employees. Using the percentage of in-house employees versus contractor employees, the ratios of customers to employees in these two categories were calculated and summed together to get the overall customers per employee ratios.

As depicted in the customer to linemen employee ratio trend in Figure 2, the total overall customers per linemen ratio has been gradually increasing, thus providing fewer linemen resources per customer. Since linemen contractor data prior to 2001 were not available, we cannot quantify the use of contractors before that time. The data in subsequent years reflect minimal use of contract linemen, except in 2005 and 2006. However, AmerenCIPS noted that the increase in contractor distribution construction in 2005 and 2006 reflects the use of contractors for major storm restoration activities, and the years prior to 2005 are more reflective of the normal use of contractor resources. The large increase in substation contractor utilization in 2002 was for the construction of one 345 KV substation. Contractors were used on a limited basis at AmerenCIPS for electric distribution and substation construction work during this period because of union contract requirements. These requirements dictated that AmerenCIPS maintain certain minimum staffing levels for various journeyman classifications.<sup>6</sup>

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<sup>6</sup> DR-092

Several of the dips in total in-house employees can be attributed to events that impacted staffing levels company-wide. From 1995 to 1997, CIPS went through a Business Process Re-engineering, but the restructuring affected management employees only. Union Electric Company and Central Illinois Public Service Company became subsidiaries of Ameren Corporation effective December 31, 1997. Concurrent with the merger, 325 employee positions were transferred to Ameren Service (AMS). In March 1998, Ameren Corporate announced plans to eliminate approximately 400 employee positions by mid-1999 through a hiring freeze and a Targeted Separation Plan (TSP), of which an unspecified portion was anticipated to come from AmerenCIPS. In July 1998, AmerenCIPS offered separation packages to employees whose positions were to be eliminated through the TSP. In 2003, a separation package was offered to the few remaining forestry employees who carried out line clearance activities. In early 2005, the AmerenUE-Illinois operations were rolled into AmerenCIPS, resulting in an increase in employee headcount.<sup>7</sup>

## 4.2.2 Call Center Employee Ratios

Since AmerenCIPS' Pawnee call center serves both electric and gas customers across its entire service territory, we used the total AmerenCIPS customer count (instead of only AmerenCIPS electric customers) in computing the ratios of call center employees to customers. The Pawnee call center did not open until August 1996. In addition, the Peoria call center and Pawnee call center have been virtual since 2005, meaning they share the handling of customer calls. However, call center statistics are still tracked by utility.

The Total Call Center In-house Employees is the sum of the customer-facing employees, and in the case of AmerenCIPS' call center, these only include Customer Service Representatives (CSRs). The CSRs also consist of individuals from Manpower who undergo training before AmerenCIPS potentially offers them permanent employment. AmerenCIPS began using Manpower employees in November 2005. Manpower employees are brought on as subcontracted employees and converted to Ameren employees if they meet the Ameren requirements, typically within one year.<sup>8</sup> At various times, there is a jump in the number of CSRs because of new hire classes. The call center employees in the following job classifications are not included in the ratio analysis: Supervisors, General Supervisors, Managing Supervisors, Manager, Director, and Vice President.

The AmerenCIPS call center did not use contract employees prior to 2002. The Call Center Contractor Employees are provided through Contract Resources from the North Carolina Live

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<sup>7</sup> DR-020

<sup>8</sup> DR-094

Agent shop. These contract employees are not generally used for overflow calls, but are instead assigned to handle special types of calls such as turn on/turn off or delinquent accounts.

The Total Call Center Employees is the sum of the Call Center In-house Employees and the Call Center Contractor Employees. Using the percentage of in-house employees versus contract employees, the ratios of customers to employees in these two categories were calculated and summed together to get the overall customers per employee ratios.

As depicted in the call center employee ratio trend in Figure 3, AmerenCIPS' ratios of customers per call center employee fluctuated during the 1995-2006 timeframe, ranging from approximately 8,100 to about 11,300 customers per employee. The fluctuations in the ratios were due to organizational changes from the UE and CIPS merger in December 1997, the consolidation of operating centers in 2000 and 2003, the transfer of UE Illinois electric distribution and transmission assets in May 2005, and the call center becoming virtual in 2005.

### **4.2.3 Meter Service Employee Ratios**

Most of the meter service employees serving Illinois also report to the AmerenCIPS operating centers, as listed above in the Linemen Employee Ratios section. As previously discussed, the changes in operating centers and the lack of consistent data by operating center for the 1995-2006 timeframe makes it difficult to draw meaningful conclusions when the workforce ratios are calculated by operating center. As a result, the meter service employee ratios were calculated based on the total AmerenCIPS customers and metering employees each year.

Meter service employees consist of personnel from the following job classifications: Meter Reader Groundman, Meter Reader Apprentice, Metering Technician, Metering Technician Apprentice, Meter Foreman, Meterman Journeyman, and Meterman Apprentice. Metering supervisors, managers, and engineers are not included in the in-house employee counts.

The Total Meter Service In-house Employees is the sum of the meter employees in the job classifications listed above. Total Meter Service Contractor Employees only includes contract meter reader FTEs. These FTEs were calculated based on contractor invoice data provided by AmerenCIPS. For meter reading, contractor invoice data for 2000-2006 were provided on an annual basis, and a rough estimate of contractor staffing levels was developed by utilizing the 2008 hourly rate of \$40.55/hr and dividing by 2080 hours/year. Previous years' contractor staffing levels were developed by reducing the \$40.55/hour by 3% per year. The data for years prior to 2000 was not available; however, AmerenCIPS noted that virtually all meter reading was performed by in-house resources during that time. AmerenCIPS did not provide information by operating center regarding where any of the contractors worked.

The Total Meter Service Employees is the sum of the Meter Service In-house Employees and the Meter Service Contractor Employees. Using the percentage of in-house employees versus

contractor employees, the ratios of customers to employees in these two categories were calculated and summed together to get the overall customers per employee ratios.

As depicted in the meter service employee ratio trend in Figure 4, the overall total customers per meter service employee ratios have steadily increased each year. Unlike electric distribution and substation construction work, meter reading was exempted from the minimum staffing requirements dictated in the union contracts, allowing for the ramp-up in contractor use. The total in-house meter service employees have gradually decreased and been replaced by contractor employees. The decrease in in-house meter readers is due to the anticipation of automatic meter reading in certain areas. AmerenCIPS chose to reduce the number of meter readers through attrition instead of laying off full time in-house meter readers at the time of conversion in late 2007. As a result, the total number of metering employees available per customer appears to also be on a general decline.

## 4.3 Conclusions

AmerenCIPS has consistently and increasingly utilized outsourcing to augment its linemen, call center employees and meter service workforce throughout the 1995-2006 timeframe.

- The total overall customers per linemen ratio has been gradually increasing, thus providing fewer linemen resources per customer.
- Since 2001, the first year that the number of linemen contractor employees could actually be quantified, the use of contract linemen has been minimal due to union contract requirements.
- Prior to 2002, AmerenCIPS' call center did not use contract employees, and since 2005, Manpower employees have been brought in as CSRs-in-training before AmerenCIPS potentially offers them permanent employment.
- AmerenCIPS' ratio of customers per call center employee fluctuated during the 1995-2006 timeframe, ranging from approximately 8,100 to about 11,300 customers per employee. The fluctuations in the ratios are due to organizational changes from the UE and CIPS merger in December 1997, the consolidation of operating centers in 2000 and 2003, the transfer of UE Illinois electric distribution and transmission assets in May 2005, and the call center becoming virtual in 2005.
- AmerenCIPS' general philosophy with meter service employees has been to replace in-house employees with contractors as necessary.
- The gradual decrease in in-house meter readers is due to the anticipation of automatic meter reading in certain areas. AmerenCIPS chose to reduce the number of meter

readers through attrition instead of laying off full time in-house meter readers at the time of conversion in late 2008.

## 5.0 Workforce Adequacy Analysis

Jacobs Consultancy assessed the areas specified in the scope of work. For each assessment area, we present our analysis in the form of findings, conclusions, and recommendations, as appropriate.

### 5.1 Operations and Maintenance

#### 5.1.1 Background

##### *Operations*

AmerenCIPS' electric control center is located in Mattoon, Illinois. The electric and gas functions are divided and handled by different personnel. Distribution is defined as voltages under 100 kV, and the Company has 69 substations equipped with Remote Terminal Units (RTUs). Distribution control has two key goals:

1. Operate the system reliably and safely; including high voltage (HV) switching, load monitoring, etc., and
2. Storm restoration including system recovery from widespread outages

The Energy Management System (EMS)/Supervisory Control and Data Acquisition (SCADA) system reaches down to 34.5 kV for monitoring and control, and most of AmerenCIPS' sub-transmission lines are monitored. AmerenCIPS has only 1% of its distribution feeders SCADA-equipped and has only 0.35% of its customers are on distribution feeders with SCADA. Without better penetration of SCADA in the distribution system, the outage analysis system (OAS) will not be able rapidly group related outage calls to the device that has operated and longer restoration times may result.

The control center's communication is mainly via radio, with cell phones for back-up and for areas where radio communications are not reliable. AmerenCIPS has recently completed the implementation of piggy-backing on the state police radio system and believes that all dead radio areas have been eliminated. Currently, there are mobile data terminals (MDT) in first responders' vehicles for electric, so they can review all work orders and determine if a larger crew is needed. If so, they transfer the work to the work management system (WMS).

The control center has interface with the call center through:

- Direct and automated linkages with Customer Information System (CIS)
- Live Customer Service Agent calls

- High Volume Outage Call Answering System (HVCA), which is linked to the OAS for status and estimated time to restore (ETR)

AmerenCIPS participates in Edison Electric Institute (EEI) Midwest mutual assistance, a group of utilities covering three North to South zones. The initiating utility will request a conference call to discuss crew availability, materials and specific needs during emergencies, or in anticipation of emergencies. The responding utility will usually also send supervisors, safety personnel, trucks and mechanics for equipment.

## **Maintenance**

To properly assess workforce adequacy, we examined the maintenance function with a focus on maintenance planning/cycles, maintenance accomplishments, backlogs, work effort barriers, field worker adequacy, crew sizes, system inspections, vegetation management, the use of contractors, quality control, distribution system condition and technology enablers.

### **5.1.2 Findings**

#### **Maintenance Planning**

- AmerenCIPS' maintenance initiative descriptions and schedules are described below:
  - **Weekly Reliability Review Process**—This process was initiated in 2006. The purpose of this program is to systematically identify, review and repair the facilities that caused devices to experience multiple (3 or more) interruptions in the past 12 months.
  - **Tap Fusing Program**—This program began in 2003 as a result of recommendations presented in a reliability improvement study. The program is intended to identify, rank and systematically address all economical tap fusing opportunities. The economics are derived using a factor known as System Avoided Cost Factor (SACF), which represents the cost per kVA-hr of avoided customer outages. AmerenCIPS has spent on the order of \$500,000 annually since 2004 on this program.
  - **Direct Buried Cable Replacement**—This program is aimed at replacing underground cables that have experienced excessive failures. In particular, the program will require:
    - Replacement of individual sections after four failures in a lifetime or three failures in a lifetime if two occurred within a 12-month period.

- Replacement of all or a subset of the cable sections for an average failure rate of 0.6 failures/section within a 3-year period, or a total of six failures, among all cable sections, within a 3-year period.
- **Distribution Feeder Design**—In 2005, Ameren developed a common distribution feeder design document<sup>9</sup> that was distributed to all Ameren Illinois utilities. The document sets out the common design parameters and refers to Ameren Construction Standards as the detail reference material.
- **Animal Protection**—The animal protection program is intended to provide additional protection on existing overhead distribution transformers that have experienced animal-related outages. In addition, all new overhead distribution transformers will be fitted with animal protection as needed.
- **ICC Worst Performing Circuits**—This program was implemented several years ago and AmerenCIPS adopted a new process for handling the program in 2007. This program is intended to ensure circuits that appear on the worst performing circuits list of the ICC annual self-assessment receive the appropriate level of review and remedial action. A circuit will appear on this list if it is among the worst 1% of all circuits in an operating area based on reliability indices. These circuits will be inspected and the results recorded on the Circuit and Device Inspection System (CDIS) for tracking, review and remediation. Corrective action will then be entered into the Distribution Operations Job Management (DOJM) work management system.
- **Storm Normalized Worst Performing Circuits**—In 2007, Ameren Illinois Utilities analyzed an additional set of worst performing circuits based on removing outage data that occurred on days considered to be “major event days” based on Institute of Electrical and Electronics Engineers, Inc (IEEE) Major Event Day (MED) definitions. The intent was to further identify circuits that experience poor performance under non-storm conditions.
- **Circuit Inspection Programs**<sup>10</sup>—AmerenCIPS has a 4-year cycle for circuit inspections and has incorporated the ICC-mandated National Electric Safety Code (NESC) inspection in the process. The inspection programs are summarized in the following table.

<sup>9</sup> DR-007

<sup>10</sup> DR004-(DR 347A)

**Table 4 - Circuit Inspection Program**

Type of Inspection	Facilities Inspected	Cycle Length
Complete overhead circuit inspection and attachment survey	Subtransmission and distribution circuits. All foreign company attachments. Check clearances for NESC compliance.	4 years
Inspections by tree trimmers	Subtransmission and distribution circuits and all associated hardware	4 years
Subtransmission circuits	Subtransmission circuits	2 years
Aerial infrared inspections	Subtransmission circuits	as needed
Pole inspection and treatment	Subtransmission and distribution circuits	12 years
Capacitor inspections	Capacitors	1 year
Regulators inspection / reading	Voltage regulators	6 months
Line recloser inspection / reading	Line reclosers	6 months
UG network inspections	Network transformers and protectors	1 year
Field personnel as-found reports	All facilities Items reported	as found

- **National Electrical Safety Code Corrective Action Plan**—A complete circuit inspection identifying all NESC and reliability deficiencies will be conducted on all Illinois distribution circuits from 2008-2011, with all corrective actions to be completed by 2012. In addition, a ground line inspection will be conducted annually on all poles on circuits identified that year for inspection. Corrective actions will be completed based on AmerenCIPS' National Electrical Safety Code Corrective Action Plan filed with the ICC.
- **Circuit Breaker Maintenance**—Oil circuit breakers (OCB) operating at less than 34.5 kV are serviced every 36 months; this includes contact resistance tests, oil dielectric tests, operations checks and mechanism lubrication. These breakers are overhauled every 108 months or after 12 full fault trips. OCBs for capacitor bank switching are inspected every year. Other breaker types, including sulphur-hexafluoride (SF6), air blast and vacuum are maintained on a 1-5 year basis depending on type.
- **Recloser Maintenance**—Single-phase reclosers are replaced every 5 or 10 years for oil or vacuum, respectively, and removed units are refurbished for re-use. Three-phase reclosers are serviced every 3 or 6 years for oil or vacuum, respectively. Internal inspections may be triggered more frequently depending on performance.

- **Regulator Maintenance**—Single phase regulators have at least a 3-year operations, oil dielectric and acidity check<sup>11</sup>. The results of these checks may indicate a required overhaul.
- **Switch Maintenance**—Aside from infrared scans and visual inspections, AmerenCIPS' switches are not typically scheduled for maintenance.
- **Transformers**—Transformers with high side below 138 kV are tested every 3 years for oil dielectric, oil acidity and head space gas. These are inspected every 10 years for more in-depth tests.
- **Substations**—AmerenCIPS uses a combination of time-based, condition-based, preventative and predictive substation maintenance programs. This is coupled with its reliability-centered maintenance philosophy that examines failure modes and directs corrective and preventative maintenance.
- **Vegetation Management**<sup>12</sup>—AmerenCIPS performs routine maintenance line clearance tree trimming on a 4-year cycle. Mid-cycle trimming is scheduled based on the results of mid-cycle patrols conducted by contractor general foremen, AmerenCIPS vegetation supervisors, and contract job planners and contract trip crew staff. Tree trimming is outsourced and competitively bid.

### **Crew Scheduling**<sup>13</sup>

- Within AmerenCIPS, all in-house crews are assigned work by operating center. Each operating center covers a geographic area. Dependent upon the operating center work load, crews may also be assigned work outside their operating area but within the division. Occasionally, but not often, crews are headquartered outside their division during large construction projects. Outsourced crews are assigned work based on geographic need or by specific project. An outsourced crew typically works in one division on a project or on multiple projects until the projects are completed, and then may be assigned to a different division or released.
- AmerenCIPS has negotiated contractual changes with represented labor that has helped to facilitate the change to a divisional functional organization<sup>14</sup>. These include:
  - Expanded patrolman duties
  - Qualified gas employees performing electric meter disconnects and reconnects

<sup>11</sup> DR-003

<sup>12</sup> DR-005

<sup>13</sup> DR-008

<sup>14</sup> DR-087

- Emergency response by the closest available resource regardless of company or union affiliation
- Expanded geographic areas of responsibility for metering, substation and relay workers
- Unrestricted contracting on circuit inspections
- Unrestricted JULIE<sup>15</sup> locates
- Forestry crews are outsourced and are typically assigned by circuits that are scheduled for trim in the upcoming trim cycle.
- In-house substation crews are assigned by division, and outsourced substation crews are assigned by project.
- AmerenCIPS supplements Company crews with contractor crews. This number of support contractors will vary as required to meet the peaks and valleys of workload.
- Shifts—AmerenCIPS crews, troublemen, metermen and substation journeymen currently work a standard 8 am to 4 pm shift Monday to Friday.<sup>16</sup>
- For field operations, external resources are not used to supplement during off-shift hours during normal operations. The exception is external resources are used to perform emergency locates.

### ***Use of In-House Crews vs. Contractors<sup>17</sup>***

- In general, AmerenCIPS historically has maintained an in house workforce large enough to cover all but the largest spikes in resource needs. Typically, the type of work contracted out was large transmission and subtransmission project several miles in length (20-25miles).
- The Company's Union contracts historically required that a specific field workforce headcount level be maintained, this has served to minimize base load work from being contracted out. Over the years, the required in-house employee levels have gradually been reduced permitting more outsourcing. For a more complete discussion on this topic, please refer to the section titled Labor Agreement Contracting Language located in Appendix C.

<sup>15</sup> Joint Utility Locating Information for Excavators, a dig-safe program to minimize damage to underground utility facilities during excavations or other construction.

<sup>16</sup> DR-040

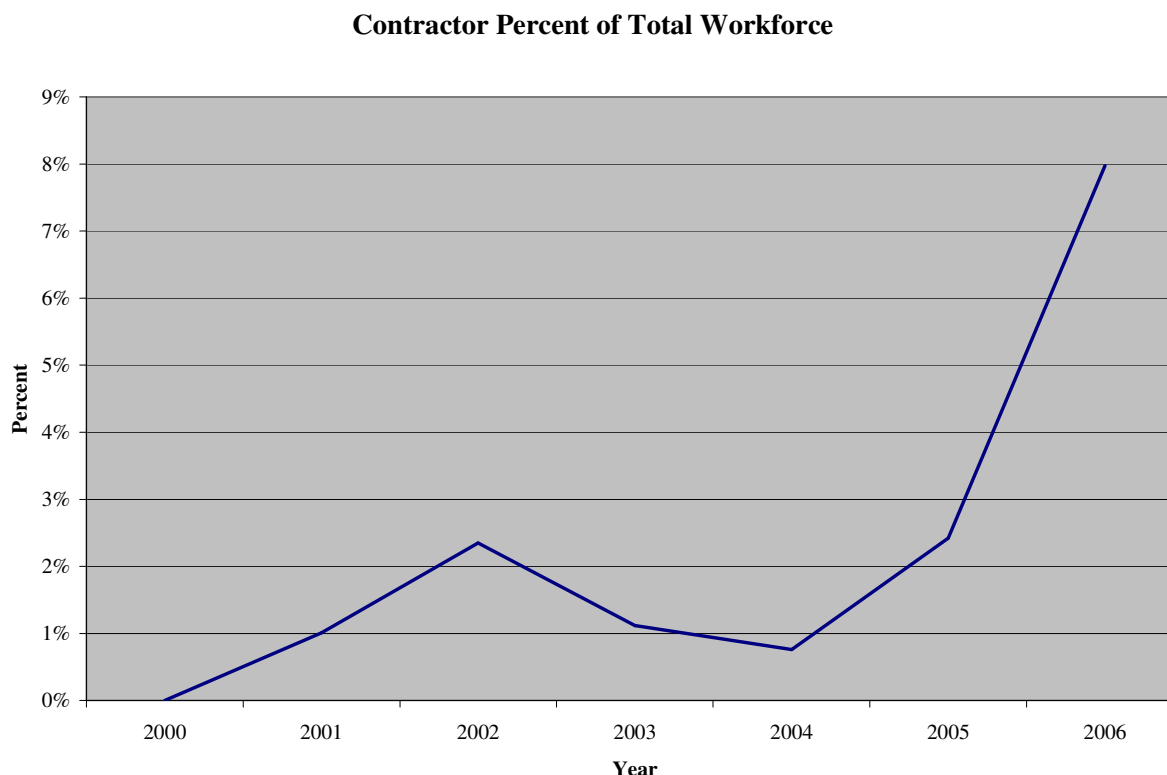
<sup>17</sup> DR-038

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- The exceptions to the general rule that “in-house work force is our preferred work force” include:
  - In meter reading, third party contractors have been utilized so in-house numbers could be reduced, in preparation for automated meter reading.
  - For line clearance, the Company has shifted from in-house crews to outside crews; pole testing and re-enforcement is preformed by a third party.
- Practically all substation work is performed with in-house crews.
- All relay maintenance is done in-house.
- Aside from small local contractors, AmerenCIPS has outsource agreements with a number of contractors for<sup>18</sup>:
  - Vegetation: Wrights Tree Service, Aerial Solutions, Nelson Vegetation Management, Shade tree Vegetation Management, and Owens Specialty Services for herbicide.
  - Line Construction: J.F. Electric, L.E. Meyers and Miller Construction
  - Substation construction: L.E. Meyers
  - Directional Boring: J.F. Electric
  - Circuit Inspections: Utilimap
  - Meter Reading: J.F. Electric
  - Locating: ELM Locating Utility Services and Consolidated Utility Services
  - Aerial Patrolling: Central IL Air Corp and Fostaire Aerial Patrol.
- While AmerenCIPS has basically maintained its in-house field worker complement, it has made limited use of contractors to supplement its workforce. The penetration of contractor FTEs has increased from 0 in 2000 to 8% in 2006, as shown in the figure below.

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<sup>18</sup> DR-026

**Figure 5 - Contractor Percent of Total Workforce**

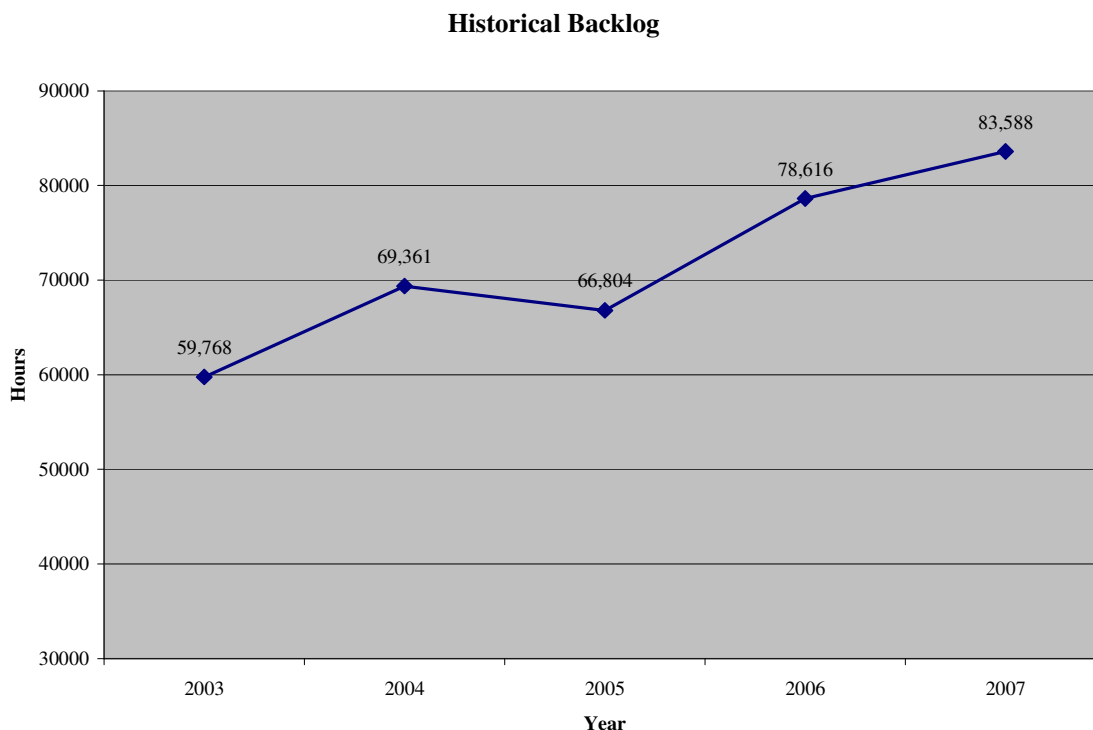


### ***Workload and Backlogs***

- Work is identified from load analysis, distribution circuit peak demand studies, 4 kV and 12 kV studies, distribution engineering studies, government highway projects, the top 10 worst performing circuits, and deteriorated facilities.
- A scheduling meeting is conducted each week to review all types of work for that week and the following week. This meeting includes the electric/gas supervisors, superintendents, engineers, and the work site coordinators.
- Monthly staff meetings are held with the division and operations managers and the reliability group. These meetings are an avenue for participants to discuss safety, human resource and labor issues, and to share ideas between division managers. Decisions can be made, but no minutes are kept.
- Critical and non-critical work is scheduled together to ensure a continuous work stream and to assure that all problems on a particular facility are resolved.

- Over the 2003 to 2007 period<sup>19</sup>, the work backlog remained relatively flat—ranging from 19% to 22%, as AmerenCIPS strived to complete work orders through optimized crew scheduling and use of contractors to fill in when necessary. In our experience, this level of backlog workload can be considered normal. The following figures illustrate backlog first in terms of hours (Figure 2) and then in terms of hours as a percent of total hours worked (Figure 3) from 2003 to 2007<sup>20</sup>.

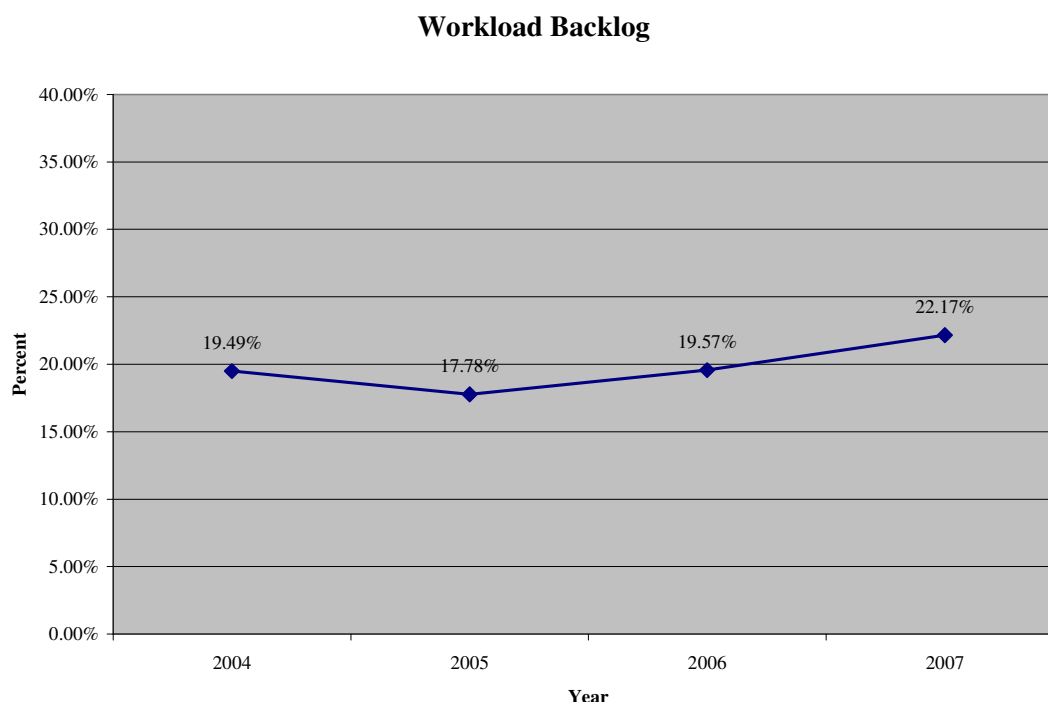
**Figure 6 - Historical Work Backlog**



<sup>19</sup> Data only available from mid-2003 due to accounting system change.

<sup>20</sup> DR-113

**Figure 7 - Workload Backlog**



- While the backlog has increased since 2005, it is still within normal utility ranges. However, given the increasing levels of overtime and the additional workload being created as a result of the ICC-mandated reliability inspection programs, it is unlikely that AmerenCIPS will be able to maintain the backlog at the 2007 level. Thus, there is a risk based on these factors that the backlog may increase in coming years without an increase its internal workforce or use of contractors.

### **Staffing<sup>21</sup>**

- Ameren contracted Towers Perrin to develop a workforce projection for its Illinois Energy Delivery Groups in 2006. The study reviewed a wide range of job and position classifications and considered attrition, retirements and replacement required to maintain a level workforce. Specifically, the study recommended the following:

<sup>21</sup> DR-011

**Table 5 - Workforce Projection for Illinois Energy Delivery Groups**

Group	Employee Count 1/1/2006	Annual Additions Next 15 years
Craft Workers – Electric	699	25-35
Craft Workers – Gas	455	20-25
Customer Service (non-union)	163	5-7
Customer Service (union)	139	5-7
Engineers	41	1-2
Leadership	62	2-4
Operatives	155	6-8
Professionals	72	2-4
Support (non-union)	48	1-3
Support (union)	81	3-5
Technicians (non-union)	28	1-2
Technicians (union)	87	2-3
First Line Supervisors	132	3-5 (next 6 years) 6-9 (next 9 years)
<b>Total</b>	<b>2,030</b>	<b>82-119</b>

- AmerenCIPS, as part of the Ameren Illinois Utilities, was included in specific workforce planning studies<sup>22</sup> in 2006 covering substation workers and relay services employees. The study included projections of employee exits in the Illinois workforce due to retirements, deaths and voluntary and involuntary or terminations. Ameren is pursuing workforce development initiatives in trade and craft schools, colleges and universities as a result of the study.
  - Substations - The study focused on the then current demographics and the assumption that the core workforce to handle preventative and corrective maintenance, construction activities and various operational activities would remain constant. Staffing is geared toward 70% maintenance and 30% construction. That study indicated that the complement of substation electrical workers would be in excess of approved levels while new apprentices were added to capture the knowledge of the more mature demographic pool. The study also anticipated that actual workforce levels would return to budgeted levels by 2012. The level of staffing required will be influenced by the results of the recommendations of the Substation Maintenance Strategy Team, whose review was completed at the end of 2006.<sup>23</sup>
  - System Relay Services – This study was conducted in a similar fashion to the study for substations described above. The results indicated that in 5 years of the 10-year study period, this group would be below budgeted staff levels. The report stressed the importance of providing training on a fairly continuous basis

<sup>22</sup> DR-009 revised

<sup>23</sup> AmerenCIPS has yet to fully implement the strategy.

to permit the new employees to gain the experience needed prior to mature staff retirements.

- There were significant staff level changes (primarily reductions) during the period of changes in ownership of the Illinois utilities in the late 1990s and early 2000s. Union Electric and Central Illinois Public Service Company became subsidiaries of Ameren on December 31, 1997. Concurrent with the merger, 325 employee positions were transferred to Ameren Services Company. In March 1998, AmerenCIPS announced plans to reduce its operating expenses, including plans to eliminate approximately 400 employee positions by mid-1999 through a hiring freeze and a Targeted Separation Plan (TSP). In July 1998, AmerenCIPS offered separation packages to employees whose positions were to be eliminated through the TSP. The decrease between 1999 and 2000 relates to the divestiture of generation as a result of the Electric Service Customer Choice and rate Relief Law of 1997, affecting approximately 750 positions. In early 2005, AmerenUE-ME operations were rolled into AmerenCIPS resulting in an increase in employee headcount.<sup>24</sup>
- Through the 1995-2006 periods, various improvements and updates were made in the form of labor saving materials, better and additional equipment, new systems and the deployment of new technologies. Some of the major improvements include:
  - Directional boring equipment
  - Additional bucket trucks of various sizes
  - “Back lot” access pole setting equipment
  - Automated mapping system
  - Mobile data terminals in service trucks
  - Deployment of cell phone technologies
  - Outage analysis systems
  - Work prioritization and scheduling system

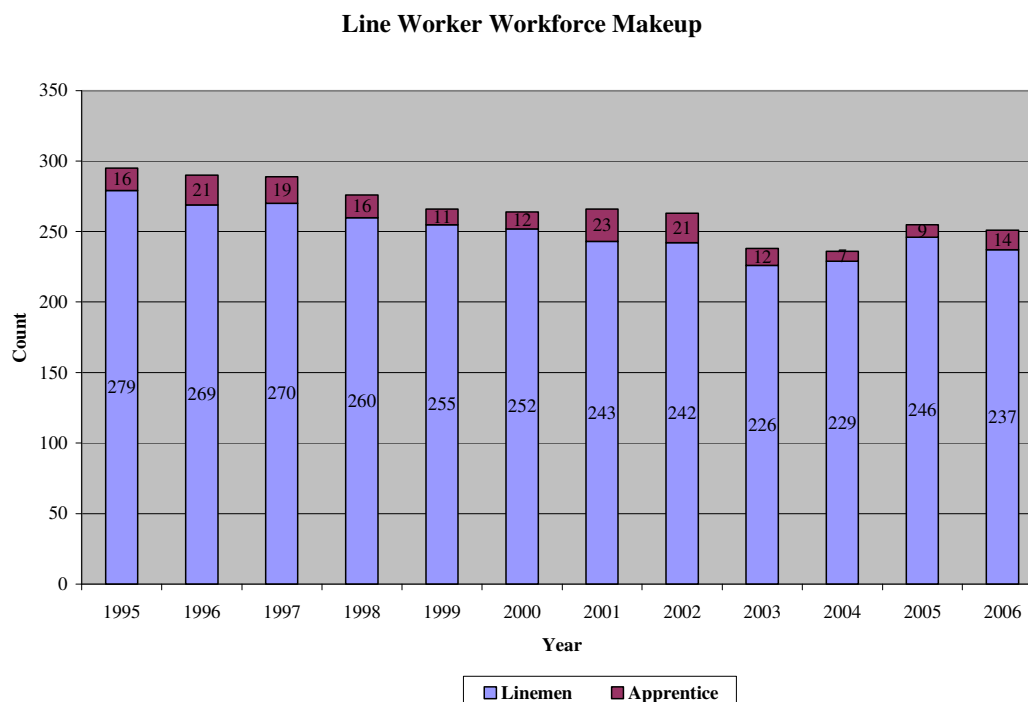
### **Line workers**

- The in-house line worker staff complement, including apprentices, is depicted in the following figure.

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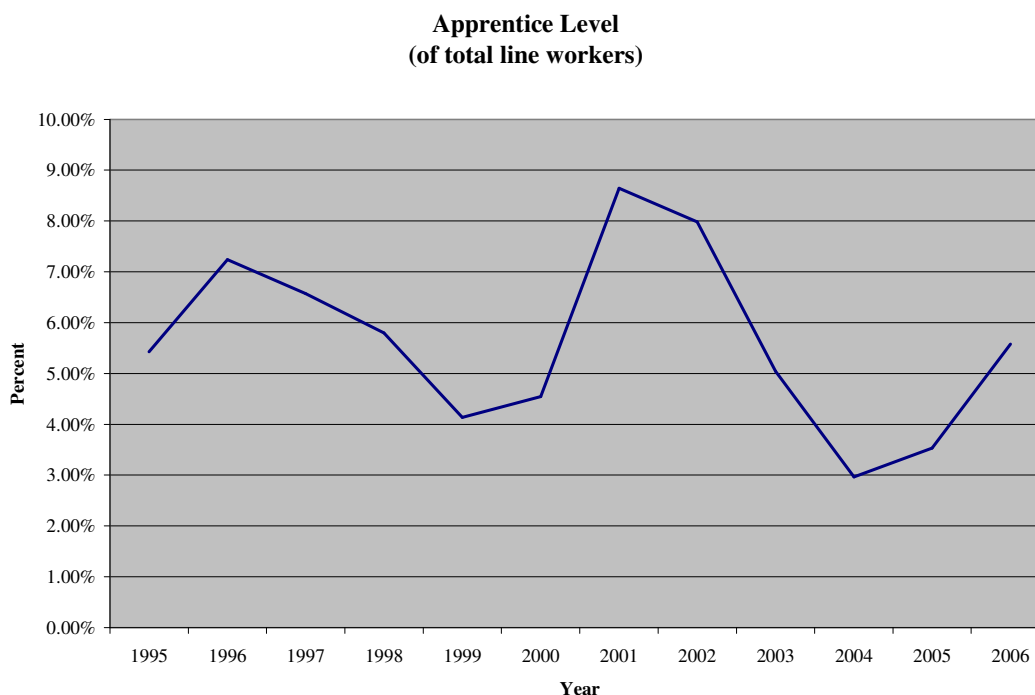
<sup>24</sup> DR-008 and DR-020

**Figure 8 - Line Worker Workforce Makeup**



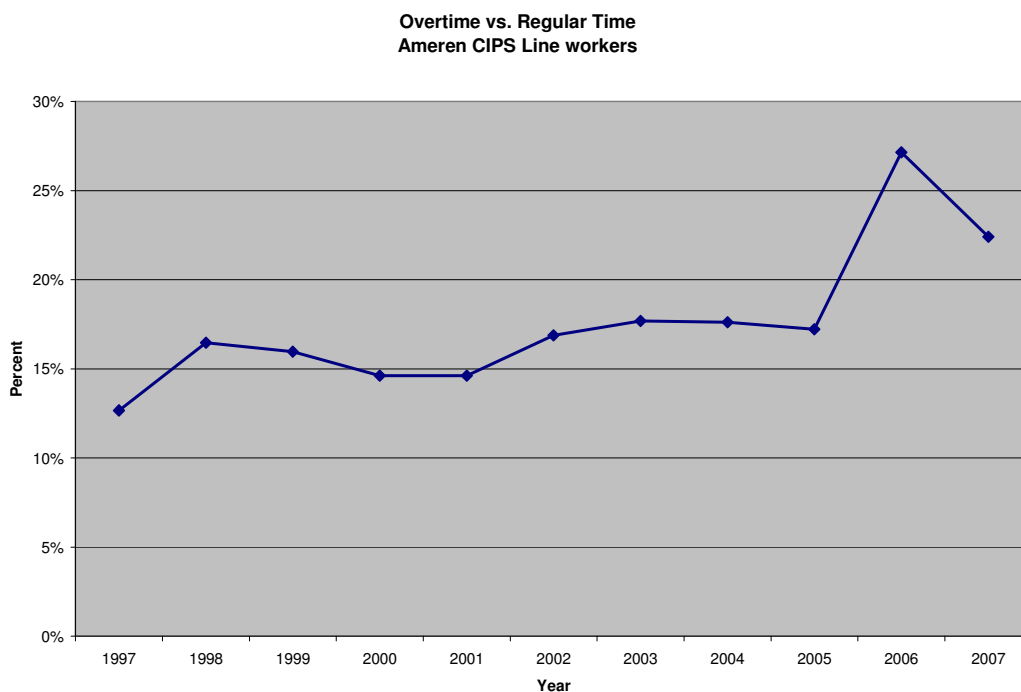
- The staffing level for linemen has been steadily declined over the 1995 to 2004 period and seems to have leveled out somewhat in 2005 and 2006 with a complement of about 250. While AmerenCIPS has recognized that its workforce is aging and has made efforts to attract and retain apprentices to replace retirees and other workforce decreases, it appears that there are too few apprentices in the pipeline to accommodate expected retirements over the near and long term.
- The composition of apprentices has varied somewhat historically. The current level of 15 is equivalent to historical averages, but still relatively low at about 5% to accommodate expected retirements.

**Figure 9 - Line Worker Apprentice Level**



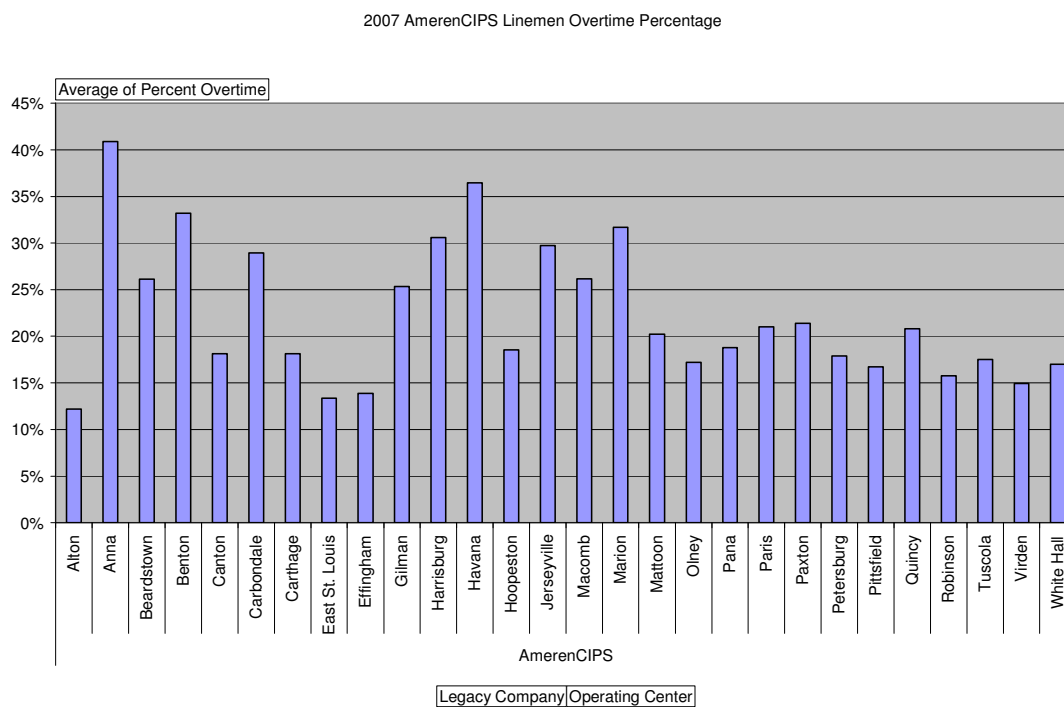
- Figure 10 tracks how overtime has increased modestly from about 13% in 1997 to 22% in 2007, excluding the spike in 2006 due to the storm outages. Percent over time results from the ratio of actual overtime hours worked to straight time. The results described are consistent with figures reported during our interviews and are comparable to industry averages.

**Figure 10 - Line Worker Overtime vs. Regular Work Time**



- Overtime varies significantly among operating centers, as depicted in the following figure.

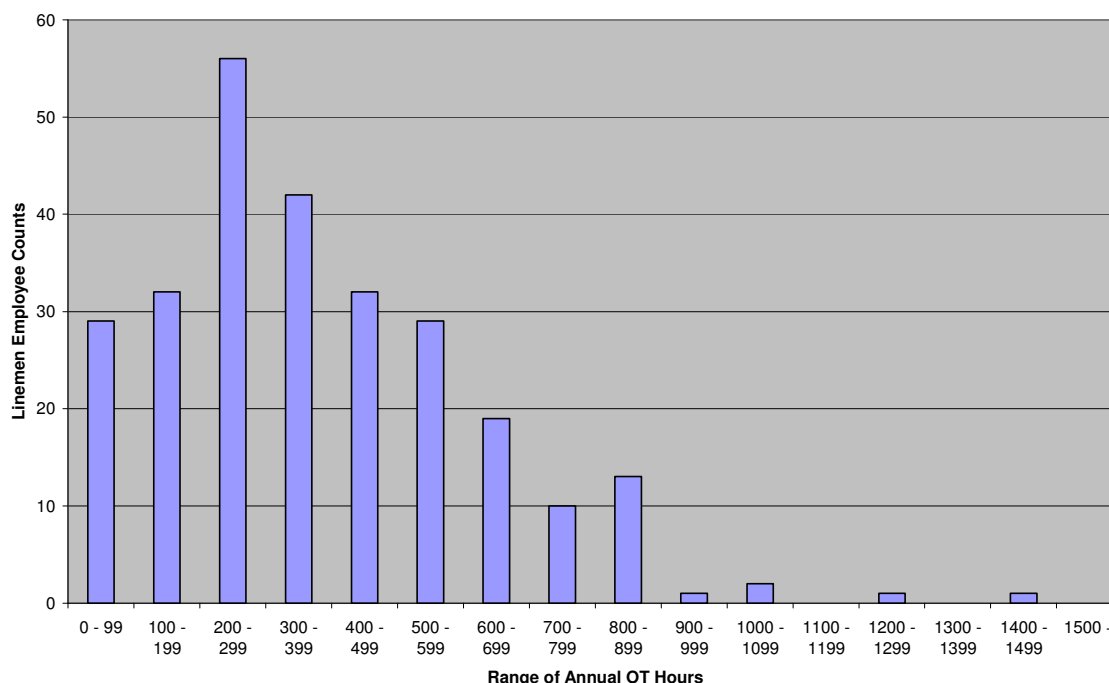
**Figure 11 - Linemen Overtime by Operating Center**



- During the interview process, we heard that significant overtime was commonplace, in some instances amounting to in excess of 1000 hours of overtime annually. While the level of overtime is high, it is clustered in the range of 100-600 annual hours of overtime, representing from 5% to 29%<sup>25</sup>, as depicted in the following figure. Overtime is in the 15% to 20% range as a typical industry practice.

**Figure 12 - Linemen Annual Overtime Hours**

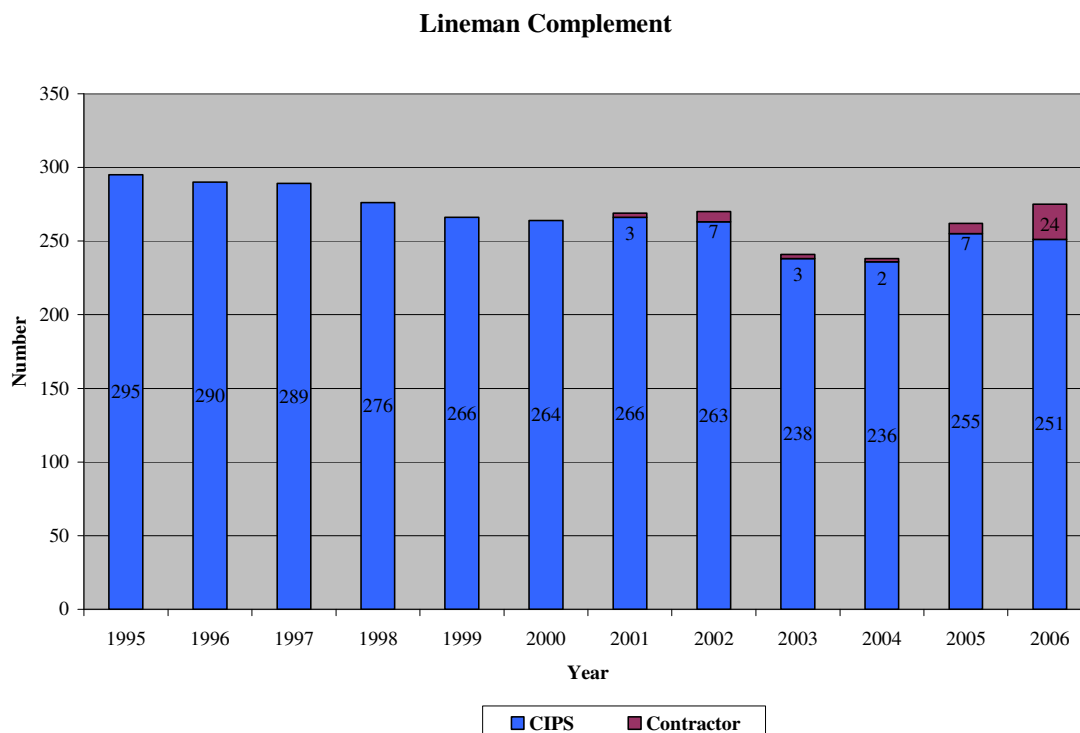
2007 AmerenCIPS Linemen Annual Overtime Hours



- While overtime for AmerenCIPS crews has increased somewhat, the use of contractors has also increased, indicating that the level of workload may be increasing such that the Company should consider augmenting its workforce.

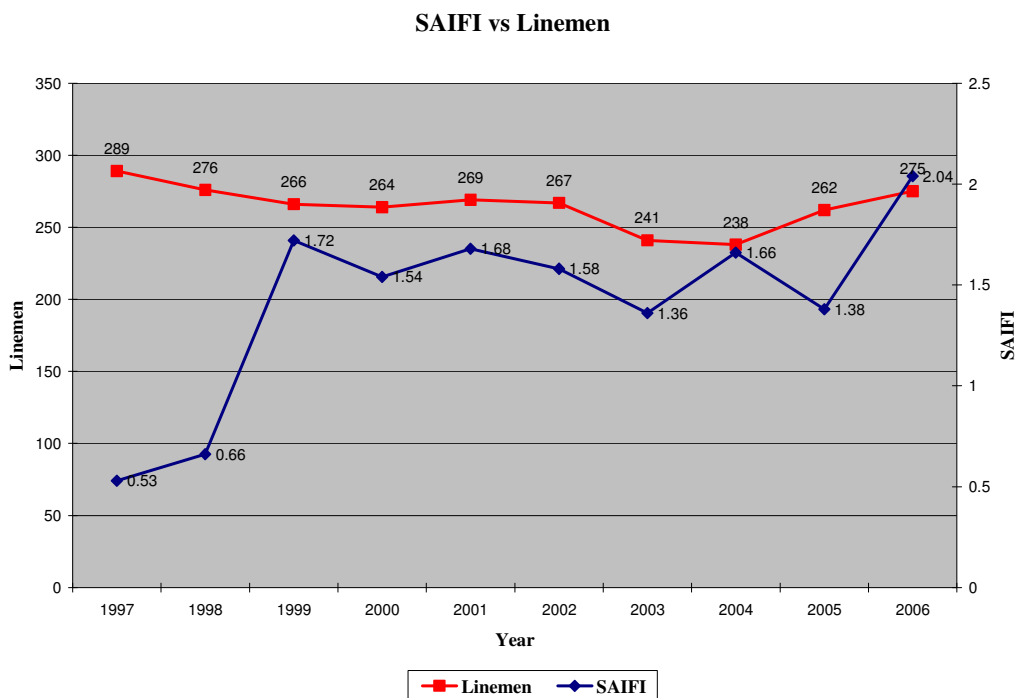
<sup>25</sup> Based on 2080 annual work hours

**Figure 13 - Linemen In-house vs. Contractor Complement**

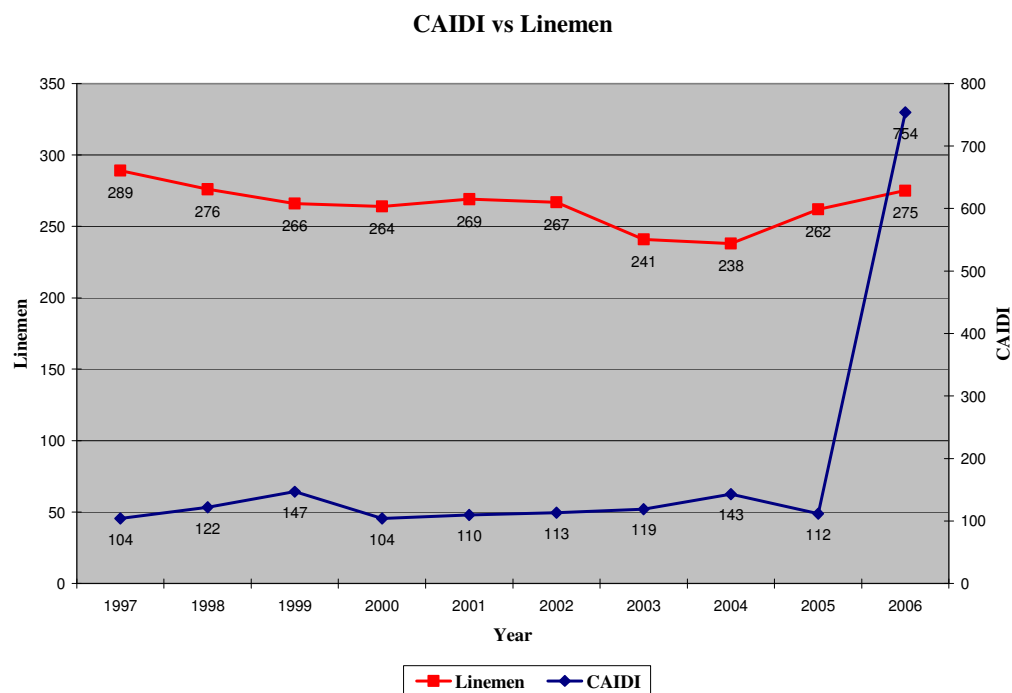


- AmerenCIPS has stated that it utilizes its system performance in terms of reliability and other indices to determine areas of focus. In the following two figures, we show the relationships between staff level changes (journeymen, apprentices and contract workers) and changes in reliability for System Average Interruption Frequency Index (SAIFI) and Customer Average Interruption Duration Index (CAIDI).

**Figure 14 - SAIFI vs. Linemen**



**Figure 15 - CAIDI vs. Linemen**



- As depicted in the preceding figures, the number of linemen (journeymen, apprentices and contract workers) has generally stayed level, except for a dip in 2003 and 2004. In

terms of commonly used electric industry measures, except for 2006, SAIFI has stayed relatively flat averaging 1.5 to 1.6 interruptions per customer, and CAIDI has also stayed relatively flat hovering around 100 minutes. Both measures are within the second quartile of best performers nationally.<sup>26</sup>

- Another set of measures used by AmerenCIPS to validate its overall service level include customer satisfaction surveys. Overall customer satisfaction survey results are reported in the Call Center section of this report. With regard to reliability, the ICC mandates that the Utility provide a survey<sup>27</sup> that captures customer sentiment toward their satisfaction with AmerenCIPS' level of "providing electric service." We have reproduced the results from this survey in the following table for 2002 through 2006.

**Table 6 - ICC Mandated Customer Reliability and Satisfaction Study<sup>28</sup>**  
**Overall Satisfaction with "Providing Electric Service"**  
**0-10 scale, total satisfied scores = 6-10**

Year	Residential	Non-Residential
2002	8.77	8.80
2003	8.64	8.83
2004	8.76	8.78
2005	8.60	8.79
2006	8.28	8.63

(Illinois Customers Only)

0-10 scale, mean scores

- Ameren recognized that it needed to create and fill workforce positions and provided its Illinois Open Position Action Plan<sup>29</sup> as summarized below for linemen:

<sup>26</sup> I.E.E.E. 2006 Benchmarking Results

<sup>27</sup> DR-032

<sup>28</sup> AmerenCIPS Customer Satisfaction Draft Report 2006 FINAL

<sup>29</sup> DR-011

**Table 7 - Ameren Illinois Open Position Action Plan<sup>30</sup>**

Division	Journeyman Linemen		Apprentice Linemen	
	Per Plan	Actual	Per Plan	Actual
1	6	6	2	2
2	5	5	2	2
3	7	6	4	4
4	7	7	2	2
5	3	3	1	1
6	8	6	2	4
7	3	4	1	0
<b>Total</b>	<b>39</b>	<b>37</b>	<b>14</b>	<b>15</b>

- It appears that Ameren Illinois is following the Open Position Action Plan by hiring 52 new electric line staff in the first nine months of implementation.
- The Towers Perrin Work Force Projection Study indicated an addition of 25-35 electric craft workers annually for the next 15 years<sup>31</sup>.

### **Substation Workers**

- The staffing level for journeymen substation electricians and technicians dipped in the early 2000s, but AmerenCIPS has added apprentices that have contributed to a recovery of staffing levels.

<sup>30</sup> The Open Action Plan as specified by Ameren Illinois does not cover a specific timeframe.

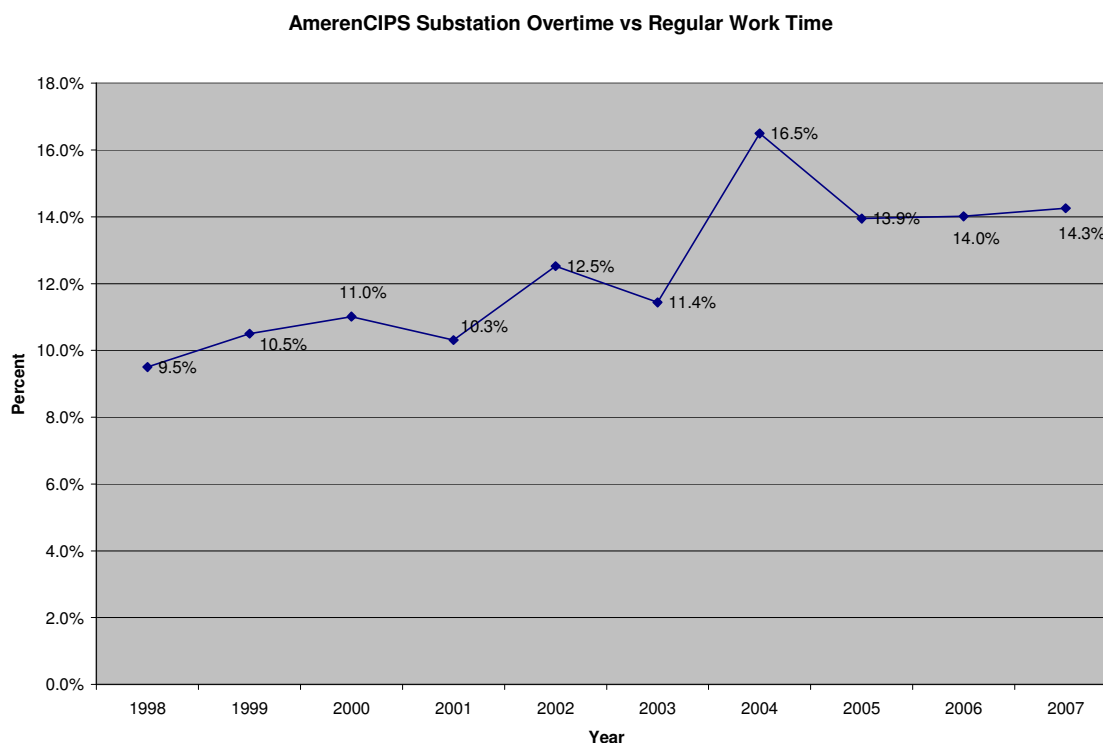
<sup>31</sup> DR-011

**Figure 16 - Substation Worker Workforce Makeup**



- The Company has rarely used contractors in the substation area, and this work was mostly for civil work, such as foundations, fencing, etc. The Company has not used contractors for substation work since 2002.
- Approximately 75% of the substation workload is maintenance-related and the remaining 25% is construction-related.
- The level of substation worker overtime has been increasing since 1998 (as depicted in the chart below), and has leveled off at about 14% recently.
- Some overtime is planned as part of the budget process.

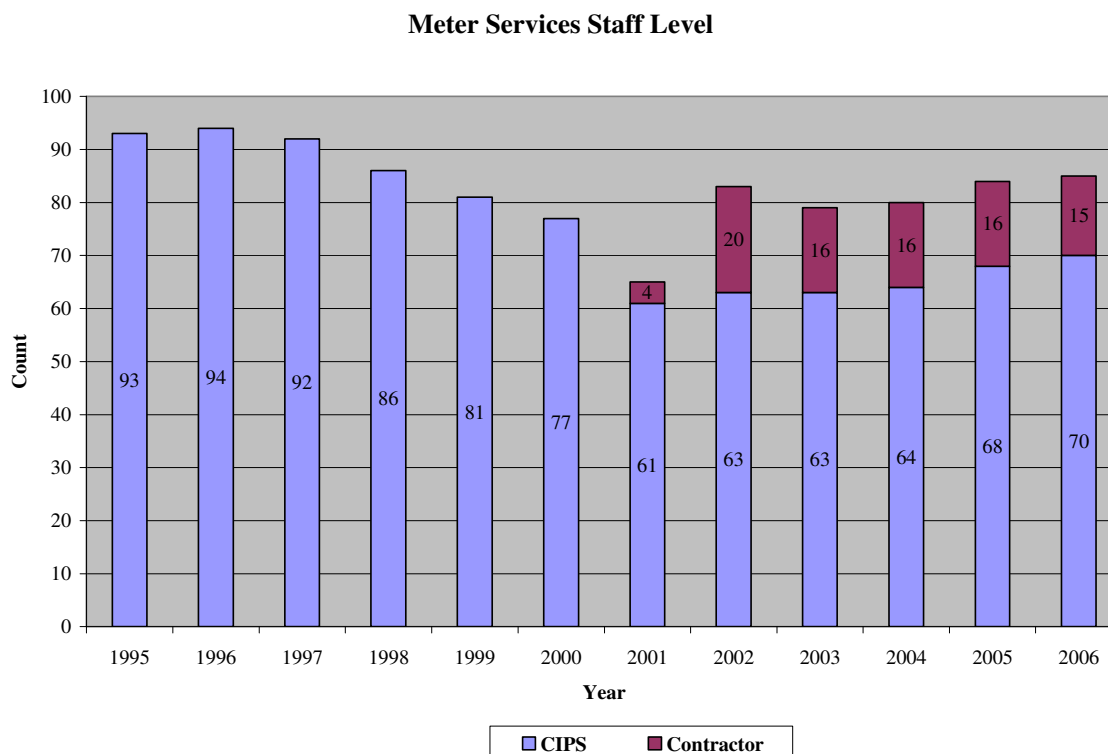
**Figure 17 - Substation Overtime vs. Regular Work Time**



### **Meter Service Workers**

- AmerenCIPS is in the process of implementing automated meter reading (AMR). Knowing that AMR was coming, the Company elected to reduce the meter reader staff by attrition so that there would be few or no layoffs. Many of the readers have and will elect transfers to apprentice programs in other jobs within the Company. AmerenCIPS has steadily increased the use of contractors for meter readings to provide adequate meter reading staff while AMR is implemented. These resources would be the first choice for layoffs, thus not impacting in-house employees.
- The meter services staff complement, including contractors, has declined from 93 in 1995 to 85 in 2006, as depicted below.

**Figure 18 - Meter Services In-house vs. Contractor Complement**



- The ratio of customers per meter services employee has generally increased each year throughout the 1995-2006 timeframe, growing from about 2,500 customers per employee in 1995 to about 3,400 customers per employee by 2006.

### **Technology Enablers**

- The work management system DOJM, purchased and implemented in the mid-1990s by Ameren UE, was adopted by AmerenCIPS at the time of its merger into Ameren. Jobs are designed, estimated, and reported (materials and time) through DOJM, which tracks required dates and contingencies (customer approval, etc.) throughout the life cycle of a distribution construction project/job. DOJM also has a personal computer (PC)-based design/estimating system known as Personal Computer Design system that allows a bill of materials for a job/project to be assembled/built offline and then uploaded to DOJM. DOJM also has a PC-based Work Prioritization and Scheduling system known as WPS. WPS allows prioritization and scheduling of date-driven customer and project work contained in DOJM.

- AmerenCIPS has deployed mobile data terminals (MDTs) in individual first responder line trucks. In addition, AmerenCIPS is beginning to provide line crews with MDTs and/or laptops with circuit maps loaded into them.
- Dispatch is done from the Mattoon dispatch and control center via radio.
- Crews pick up DOJM work orders at the service centers in the morning. The line supervisors will have reviewed and prioritized the work orders and assigned in-house or contract crews as needed. Upon completion, the work orders are closed out in DOJM by clerks at the service center.
- First responder and trouble work orders are dispatched to the MDTs in the individual first responder line trucks. The troubleshooter will choose jobs from the system, and upon completion, these work orders are cleared via MDT. If priorities change, dispatch will contact the troubleshooter to shift work priorities. If the first responder determines that additional crews are required, he/she will utilize the MDT which will result in a work order being created in DOJM and subsequently dispatched to line crews. If the situation required immediate attention, he/she would contact dispatch via radio to have crews assigned.
- The EMS/SCADA system's reach is down to 34.5 kV for monitoring and control. This allows the Outage Analysis System to rapidly group related outage calls to the device that has operated and speeds the restoration process, as well as provide relevant information back to the call center system(s).
- AmerenCIPS is currently deploying automated meter reading capabilities through CellNet. This system will result in more efficient and accurate meter reads and will free up meter readers to fill other positions within the Company.
- The table below lists the key applications.

**Table 8 - Key IT Applications<sup>32</sup>**

<b>Application</b>	<b>Description</b>	<b>Supplier</b>
<b>Distribution SCADA</b>	Referred to internally as DDOS. This is the Distribution Dispatch system utilized to monitor (real-time) and control our electric distribution substations. It also provides map viewing, capacitor control, and other functionality for Distribution Dispatch. Significant telecommunications infrastructure (wired and wireless) providing the information/data from substations. The system was custom built in the early 1990s and expanded in use and functionality since that time. This system also interfaces directly to mainframe OAS for Feeder outage notification, geographical display of outages, and GIS for maps/information.	---
<b>Work Management</b>	DOJM (Distribution Operations Job Management). DOJM is the mainframe based work management system for Gas and Electric construction jobs (crew work). Jobs are designed, estimated, and reported (materials and time) through DOJM. DOJM tracks required dates and contingencies (customer approval, wiring OK, etc.) throughout the life cycle of a distribution construction project/job. This system was purchased and implemented in the mid 1990s. The system is maintained in house and its use and functionality have been expanded since that time. DOJM also has a PC based design/estimating system known as PCDS. PCDS allows a bill of materials for a job/project to be assembled/built offline and then uploaded to DOJM. DOJM also has a PC based Work Prioritization and Scheduling system known as WPS. WPS allows prioritization and scheduling of date driven customer and project work contained in DOJM.	In-house
<b>GIS (Geographic Information System)</b>	The system is referred to as AM/FM, or FRAMME. In Illinois, there are two of these systems in operation. The Ameren system was purchased and built in the late 1990s and contains CIPS and CILCO information. The IP System also built in the 1990s contains IP information. The systems are both Intergraph based vendor systems customized at the time of implementation. The systems are both supported in house. Each AM/FM system serves as the basis for maps, outage analysis circuit models, circuit analysis models, gas analysis models, and mobile maps for field resources. We are currently engaged in a project to upgrade the two systems to a common system based on Intergraph's latest technology/system.	Intergraph

<sup>32</sup> DR-024

<b>General Ledger</b>	Millennium is the mainframe tool used by Ameren to query General Ledger data. The General Ledger system, in turn, is an on-line computer software system purchased from GEAC, formerly Dun & Bradstreet Software. The system combines accounting transactions from systems throughout the Company, such as Accounts Payable, Stores, Customer Accounts and Payroll. Accounting entries called Journals are processed monthly to create the official accounting records of the Company for audit and tax purposes. Company financial reports are produced from the General Ledger system monthly, immediately after the books are closed. In addition, ad hoc and interim reports, tailored to individual departments, are available. Accounting information can be viewed on-line through either mainframe terminals or personal computers tied to the mainframe. The system has at least two prior years of account activity in addition to the current year. Journal detail for the current year is also available on-line. The General Ledger system is coordinated with the Work Order System, which contains detailed project information on-line.	GEAC, Millennium
<b>OAS (Outage Analysis System)</b>	This is a mainframe based system for Electric outages, Emergencies, Gas Leaks, Daily Orders (move in/out), Meter work, etc. Customer outage calls are entered by reps and VRU (internal and external). OAS analyzes calls to group orders and predict likely outage location. The system was implemented in 1993 and extensively modified since then. The system is supported in house. Modifications to the system include presentation of outage information directly to customers through <a href="http://Ameren.com">Ameren.com</a> , integration with the CIS system for daily orders, integration with a map viewing system to present a graphical view of outages, automatic email/text paging of Field supervision at defined outage levels, etc... OAS also serves as the basis for the Mobile Data Terminal application. Laptops in the trucks utilize wireless connections to access the same screens and information as internal office users. Extensive Reliability reporting and analysis (scorecards, metrics, etc.) have been developed and utilize the OAS data.	
<b>Map Viewing</b>	This system extracts data from the GIS systems and is utilized in the office and on mobile data terminals to view the Electric and Gas Distribution facility maps. The system is a vendor maintained system with custom interfaces for our GIS data.	Byers
<b>AMR (Automated Meter Reading)</b>	Automated Meter Reading provides daily and cycle meter readings in selected areas of Illinois. The data is interfaced to CIS (for billing purposes) and OAS for operational purposes such as Power Outage Notifications	CellNet
<b>Meter Data Management</b>	This system is a vendor based system. The system is utilized to determine Market Value and ISS (Interim Supply Service) rates. This data also feeds into CSS. The use of this system is currently being expanded for a Meter Data Management system (MDM) to handle the every increasing volume of interval meters in Illinois. The system also includes missing data estimating routines	Loadstar

<b>Circuit and Device Inspection (CDIS)</b>	Referred to internally as CDIS (Circuit and Device Inspection system). This system utilizes the GIS database to manage periodic device and circuit inspections. The system manages the schedule and initiates orders for Field inspection. Device inspection orders are passed to the OAS system to be worked on Mobile Data Terminals. The Circuit inspections are interfaced with map viewer for GPS (walking) based field inspection through use of a tablet computer. The field inspection results are collected and stored in the GIS database. Necessary repair orders are automatically generated and passed to DOJM for engineering and construction to resolve	
<b>Distribution Engineering Workstation (DEW)</b>	DEW is an open architecture electrical distribution system analysis software package. The program uses data from the AM/FM GIS and Transformer Load Management systems to model the electric distribution system. Engineers use these models to perform analysis in order to ensure the safe, reliable, and efficient operation of the distribution system. DEW is used to perform the following types of analyses at Ameren: Load Estimation, Power Flow, Protective Device Coordination, Fault Current, Voltage Flicker, Phase Balancing, and Capacitor Placement. AmerenIP uses PSS/U, which has similar functionality as DEW	---
<b>EMPRVE (EDS Maintenance Process Re-engineering)</b>	Referred to internally as EMPRV. This is the corporate solution for equipment (substation, fleet) maintenance, and management. EMPRV tracks the assets and directs periodic maintenance, inspection, and repair activities. EMPRV has also recently been enhanced to support the Large Capital projects scheduling, tracking and management in Energy Delivery Technical Services (EDTS) for large project (Substations, Transmission lines, etc) management.	
<b>Supply Service Systems</b>	Ameren has several systems that manage the procurement and payment of materials, supplies, and services. These systems are based on Oracle's software suite and include Sourcing, Contractor Cost Tracking and Management, Iprocurement, Supplier portal, Accounts Payable, Accounts Payable Imaging, and Procurement/payment analytics.	
<b>Budgeting</b>	This is a computer based capital and O&M budgeting and financial reporting system.	CompeteSof
<b>Projects/Assets</b>	PowerPlant is a tool that facilitates major construction project setup, maintenance and tracking. It is also used as an asset management tool to unitize property units, act as a cost repository, assist in project and asset management, facilitate queries and produce reports.	---
<b>Human Resources</b>	Personnel information and time tracking and reporting.	Peoplesoft and TRIS

## 5.1.3 Conclusions

### Operations

AmerenCIPS employs a state-of-the-art control center in Mattoon, Illinois, to monitor and control the subtransmission and a small portion of its distribution system. The Utility's SCADA reaches down to the 34.5 kV system and covers about 1% of its distribution substations. SCADA

interfaces directly to mainframe OAS for feeder outage notification and geographical display of outages.

## **Maintenance**

AmerenCIPS has a robust maintenance planning function that meets or exceeds industry norms. The maintenance planning function specifies depth and frequency of line and substation inspections, NESC code compliance, switching and control equipment maintenance intervals. The Company's maintenance planning function makes use of triggering mechanisms to identify required remedial maintenance work. These triggering mechanisms include reliability performance and component operating trends. For example, the ten worst performing circuits are identified for remediation on an annual basis, device performance degradation and underground cable replacement needs.

## **Staffing**

AmerenCIPS has recognized that its workforce is aging and has recently made efforts to increase its journeyman levels and to attract and retain apprentices to replace retirees and other workforce decreases by conducting the Towers Perrin Work Force Projection Study and following the Open Position Action Plan.

The Towers Perrin Work Force Projection Study indicated an addition of 25-35 electric craft workers annually for the next 15 years. The recently fulfilled Open Position Action Plan appears to have satisfied the first year's recommended additions.

AmerenCIPS states that its policy is to maintain an overall level of in-house employees needed to perform core base load work and complete workload peaks and valleys with contractors while subcontracting lower skilled work. However, the penetration of contractor FTEs has increased modestly from 1998 to 2006, and in 2006 accounted for approximately 8% of the total workforce.

The staffing level for in-house journeyman linemen and apprentices has declined from 295 in 1995 to 251 in 2006, and overtime has increased steadily from about 12% in 1999 to 22% in 2007. Contractor use has increased from 1% in 1999 to 9.5% in 2006.

The staffing level for journeymen substation electricians and technicians dipped in the early 2000s, but AmerenCIPS proactively added apprentices to reinforce the staffing. In 2006, the substation staffing level was still below levels in the late 1990s. The level of overtime among substation workers has increased from 9.5% in 1995 to 14.3% in 2007. AmerenCIPS faces the same difficulty as many utilities in attracting experienced linemen and substation workers, and therefore depends heavily on apprentice programs. One source for new apprentices is meter readers, some of whom are being displaced with the implementation of AMR. While the Utility

has basically maintained its in-house field worker complement, it has increasingly turned to contractors to supplement its workforce.

The meter service group—which consists of in-house and contracted meter technicians and meter readers—declined in the early 2000s, and has somewhat recovered through increased use of contractors, but is still below historic levels in the late 1990s. However, with the implementation of AMR, the number of meter readers and meter technicians is expected to decrease. Thus, overall meter service group levels will continue to decline in the future.

Line crews are responsible for restocking their trucks each morning from the storeroom. This can account for up to one hour of time that they are not in the field. However, some line crews indicated that they prefer to handle the truck stock themselves as opposed to depending on stock clerks to stage the necessary material on the loading dock.

Line supervisors spend the majority of their day in the service center handling scheduling and other paperwork. They spend the balance of an average day in the field, primarily conducting safety audits and some project quality inspections.

### ***Work Scheduling and Backlog***

AmerenCIPS conducts a series of meetings each month to address workload requirements and to balance the workload across crews and define the level of contractor involvement that is required. These meetings include: weekly workload planning, monthly meetings to review project requirements and timing, and monthly meetings to balance the workload among in-house crews and contractors. Work backlog has been comparable to typical utility performance, ranging between 20% and 22% from 2004 to 2007.

### ***Technology Enablers***

AmerenCIPS has a robust set of integrated applications that serve to support the maintenance, dispatch and operations functions. AmerenCIPS continues to expand and integrate functionality to leverage information technology to enhance productivity and effectiveness. For example, AmerenCIPS is studying expanding the implementation of MDTs for the line crews to enhance their communications and productivity potential.

## **5.1.4 Recommendations**

- 5.1.1 Ameren should update the Open Position Action Plan annually to continue to reflect the workforce needs as specified in the Towers Perrin Work Force Projection Study. Once established, the Open Position Action Plan should be aggressively pursued to increase the electric field workforce.

- 5.1.2 Ameren Illinois should articulate and implement a staffing strategy that promotes consistent in-house and outsourced worker utilization between various divisions and operating centers.

## 5.2 Training and Safety

### 5.2.1 Background

The training and safety function is an essential human resource support component of any business. Working safely means the workers leave the workplace in the same condition as when the workday began, while training refers to the acquiring of knowledge, skills and competencies resulting from teaching. In the electric distribution industry, training forms the core of apprenticeships and provides the backbone for technical education. Apprentice programs supply the training for the initial qualifications, while refresher training provides the opportunity for continued technical development. At AmerenCIPS, electric technical training consists of a combination of both training in the classroom and on the job.

The quality and effectiveness of the training and safety function is one of the most enduring sources of a sustainable, competitive advantage for companies today. Without a well-trained and safe workforce, it would be difficult for any utility to attract new employees, maintain satisfied customers and develop supportive shareholders. Thus, an organization gains a competitive advantage amongst its key stakeholders by encouraging and creating a safe environment and by training its people, allowing them to use their expertise and ingenuity to meet clearly defined objectives.

### 5.2.2 Findings

#### *Training*

- AmerenCIPS technical training is performed at two training facilities, one located in Decatur, Illinois and the other, referred to as Dorsett, is located in Maryland Heights, Missouri. Prior to December 2007, all AmerenCIPS training was conducted in the Dorsett facility or the AmerenIP training facility. However, a recently-introduced Ameren Illinois business model now has all training for linemen apprentices, both overhead and underground as well as polyphase meter journeyman, performed in Decatur. The Decatur facility formerly was the training location for AmerenIP. All substation training currently takes place at Dorsett.
- AmerenCIPS electric technical training, except for substation training, is a responsibility of the Director— Gas Operations. This position is a direct report to one of two Vice

Presidents of Regional Operations. The permanent electric training organization consists of a superintendent of training and four supervisory trainers. In addition, bargaining unit journeyman linemen are used to supplement the training workforce. All trainers have an extensive background in electric power distribution operations.

- Substation training is the responsibility of the Vice President – Electric Delivery Technical Services (EDTS) and is conducted by a substation supervisor with the support of several journeyman substation mechanics to supplement the training workforce. The apprentice program for substation journeymen has recently been standardized throughout Ameren Illinois at three years.
- Unique to the journeyman linemen conducting training on an ad hoc basis, is the fact that trainers are selected based on qualifications as opposed to seniority. This helps assure that they are skilled in current technical requirements, as well as being able to effectively deliver the training.
- Course preparation is supported by training course development facilitators located in other departments within Ameren. This, combined with the input from the subject matter expert trainers, helps to ensure that the program content is properly structured with good substance for instruction.
- Safety related technical training is coordinated by division safety specialists and may be taught at either a training facility or an operating center.
- AmerenCIPS has created an Apprentice Committee to oversee the apprentice program. The committee consists of three management members and three union members.
- Ameren is working towards having one three-year apprentice program for journeyman linemen. Currently, the AmerenCIPS and AmerenIP apprentice linemen programs are three years, while AmerenCILCO is a four year program. In addition to standardizing the program length, Ameren will also standardize the training content. Recently, the Company has been able to standardize the apprentice polyphase meter journeyman training at three years.
- Apprenticeships electric operations serve to teach new employees required skills. Apprenticeship training includes classroom training and on-the job activities. Knowledge transfer occurs when apprentices are assigned to work side-by-side with journeyman for on-the-job training.
- Each linemen apprentice attends one 3-week course, four 2-week courses, and one 1-week course over three years. AmerenCIPS belongs to the National Joint Apprentice and Training Committee (NJATC) and uses their training templates. NJATC is a joint program between the National Electrical Contractors Association (NECA) and the International Brotherhood of Electrical Workers (IBEW) and has clearly demonstrated a cost-effective way to train qualified craft workers.

- When hiring into the apprentice program, the applicant's previous knowledge and experience may be helpful in securing a position, but it will not advance him or her in a pay grade. However, when AmerenCIPS is able to hire experienced journeyman linemen, the current labor agreements permit hiring into the journeyman rate. Unfortunately, attracting seasoned journeyman linemen in the current competitive employment marketplace has proven difficult.
- Given the three-year apprentice training program, AmerenCIPS has to hire in advance of known journeyman retirements or hire experienced journeyman linemen if it wishes to maintain its current journeyman employment levels and in-house technical skills. This practice helps to develop staff so they are ready when needed and also supports knowledge transfer.
- Throughout the study period, AmerenCIPS organization has hired new linemen apprentices in every year except 2003. However, the total complement of overhead journeyman linemen, including crew leaders, has been reduced from 328 in 1997 to 240 and 2007. This amounts to a reduction a reduction in staff of over 26%. However, the reduction in staff is actually greater from a skills gap perspective. Given the apprentice program, plus the reality that it takes another three years at a minimum to create a fully versed journeyman linemen, it will be at least six years until the newly hired apprentice is as technically qualified as the linemen leaving the journeyman position. Thus, from a skills gap perspective, assuming just 2% journeyman linemen attrition, the effective linemen workforce could be as low as 220 employees before the impact of the most recently hired apprentices is fully felt.
- Having to serve a large service area through 22 operating centers results in a number of centers with a small number of employees. For locations with a small numbers of employees, it becomes critical to know in advance of potential retirements or contemplated attrition. If staffing levels fall too low in these locations, loss of in-house technical skills as well as skill gaps between seasoned journeyman linemen capabilities and apprentices can and do exist.

**Table 9 - Linemen Apprentice Staffing Levels<sup>33</sup>**
**AmerenCIPS Linemen Apprentices**
**Non-Metro East - Linemen**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Appr Linemen 1st 9 Mos	5	1	3	6	9	2		4	3	5	3
Appr Linemen 2nd 9 Mos	7		1	4	7	7	1		2	4	3
Appr Linemen 3rd 9 Mos	6	8		2	3	9	4		1		5
Appr Linemen 4th 9 Mos	1	7	7		4	3	7	3	1	3	1
Journeyman	270	260	255	252	243	242	226	229	212	204	196
Total	289	276	266	264	266	263	238	236	219	216	208
Linemen Leaving Company	21	20	15	17	21	21	28	13	21	18	19

**Metro East - Linemen**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Apprentice Linemen-Illinois	2	0	2	1	4	5	5	5	2	2	1
Journeyman	37	38	35	38	31	35	31	33	36	34	31
Total	39	38	37	39	35	40	36	38	38	36	32
Linemen Leaving Company	6	3	6	2	7	3	4	2	3	4	5

Source: DR-055

- The above table describes the number of Non-Metro East and Metro East linemen apprentices for the 10-year period under study as well as 2007. The table includes a breakdown by year for the non-Metro East linemen showing how the apprentices have progressed through the program. It also includes for each year the number of journeyman linemen leaving the Company for any reason.

**Table 4 – Substation Apprentice Staffing Levels**
**AmerenCIPS Substation Apprentices**
**Non-Metro East - Substation**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Apprentice Substation Electrician <sup>1</sup>	3	4	3	4	7	7	4	4	7	10	8
Asst Substation Foreman	5	5	5	6	6	6	5	6	7	8	7
Relay Journeyman <sup>2</sup>	9	1	1	1	1	1	1	1	1	1	1
Relay Technician <sup>3</sup>		9	9	9	9	9	9	8	7	10	8
Substa Elec-Troubleman	21	22	18	19	15	16	15	15	15	14	14
Substa Troub Elect - Outlying											1
Substation Electrician	19	16	18	18	15	14	13	15	11	7	9
Substation Foreman	3	3	3	3	3	3	3	3	3	3	3
Total	60	60	57	60	56	56	50	52	51	53	51
Substation Personnel Leaving	7	5	5	5	7	4	6	3	7	8	7

<sup>1</sup> Includes Apprentice Substation Electrician 1st 9 months, 2nd 9 months, 3rd 9 months, and 4th 9 months.

<sup>2</sup> Includes Relay Journeyman, Relay Journeyman 2nd year and 2nd year + 6 months.

<sup>3</sup> Includes Relay Technician, Relay Technician 1st 9 months, 2nd 9 months, 3rd 9 months, and 4th 9 months.

**Metro East - Substation**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Electrical Mechanic	7	8	8	5	6	7	7	7	7	7	8
Electrical Mechanic Apprentice	2	1	1	1	2	1	1	1	1	1	
Electrical Mechanic Leader	1	1	1	1	1	1	1	1	1	1	1
Sub Traveling Oper-ESTL/Alton	4	4	4	4	4	4	4	4	4	4	4
Total	14	14	14	11	13	13	13	13	13	13	13
Substation Personnel Leaving	0	0	2	3	0	0	0	1	0	0	0

Source: DR-130

<sup>33</sup> DR-055, DR-092

- The above table describes the number of Non-Metro East and Metro East substation apprentices (substation electricians, relay journeyman, and relay technicians) for the 10-year period under study as well as 2007. The table includes a breakdown by year for the non-Metro East linemen showing how the apprentices have progressed through the program. It also includes for each year the number of substation employees leaving the Utility for any reason.
- Historically, linemen refresher training consists of three days of training in the training center on a four-year cycle. Refresher training topics include: worker protection, grounding, capacitor banks, transformer hookup, troubleshooting and installing meters, underground troubleshooting and the use of phasing. There has been no refresher training conducted in the first half of this year, but plans are to resume training in the last quarter of 2008.
- Going forward, the Company plans to take the linemen refresher training to the field operating centers and conduct one day of training every two years on a four-year cycle. In order to accomplish this, it is anticipated that an additional trainer will be hired.
- AmerenCIPS has a total of \$1,326,000 budgeted for the electric utility business training, of which approximately \$746,000 is planned to be spent on field crew and operator training.
- Outsourced service providers, such as electrical contractors, are not trained by Ameren Illinois. Management requires that the service provider retain and provide a qualified workforce. The training centers, however, do provide training to non-electrical contractors such as substation entering training and meter replacement training. In addition, periodically training is provided to firemen and police on working around energized conductors.
- The Utility is instituting efforts with community colleges, chambers of commerce and community groups to develop and enhance a feeder program for new hires.

## **Safety**

- The Ameren Illinois safety organization consists of six division safety specialists and five safety advocates. Although the safety specialists are direct reports to the division manager, they also have a dotted-line or indirect reporting relationship to a lead safety specialist who works directly for the Company president.
- The division safety specialists, along with the division managers, act as the lead division safety persons. Job responsibilities and activities include: development of the division safety plan, implementation of the safety plan, training, coordinating safety committees

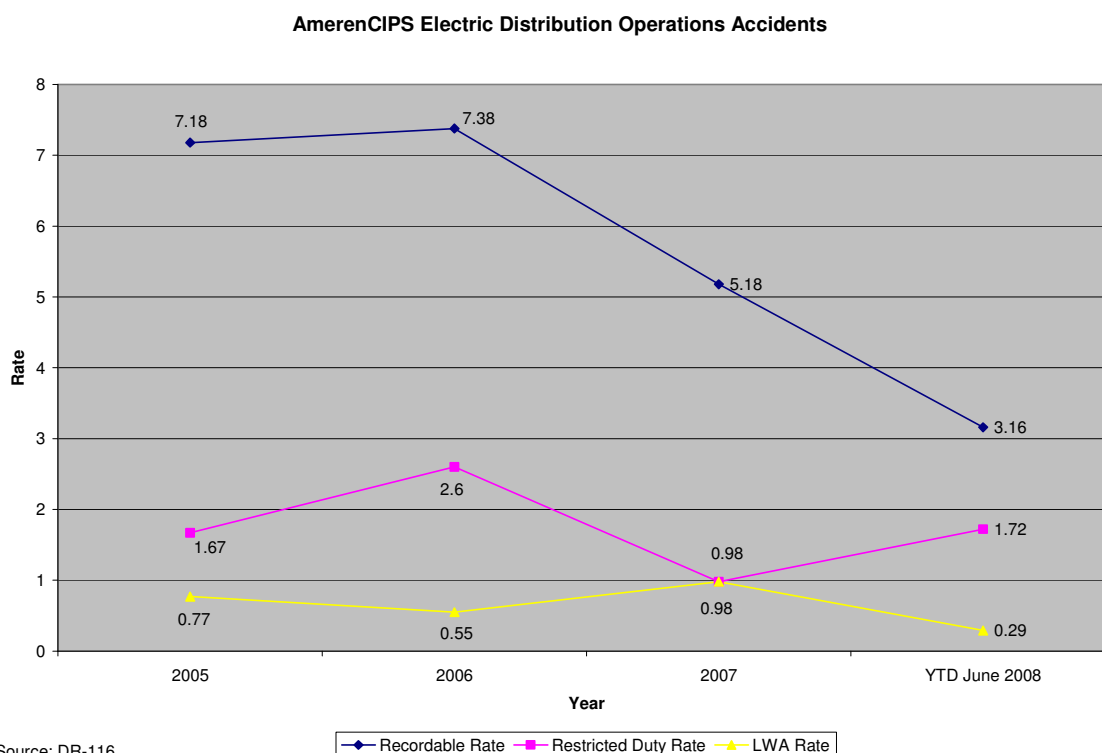
and coaching supervisors. In general, the division safety specialists have an in-depth expertise in safety as well as specific knowledge in electric distribution safety.

- The main role of the safety advocate position is to be out in the field full-time interacting with field coworkers. Their interaction includes: job briefings, review of safety practices and providing field safety feedback. Ameren is in the process of formalizing the field safety advocates feedback to enhance their knowledge of field safety issues. A safety advocate supervisor's background is generally skilled crafts with extensive knowledge of electric field work. Interviews with field employees revealed that the role of safety advocate has been well received.
- Ameren Illinois coordinates some safety activities with Ameren Missouri, but does not get specific safety direction from them. The Illinois safety organization provides safety assistance including accident investigation and preparation of safety materials to the Substation group, which reports into Ameren Missouri.
- Safety training occurs at the operating centers and the Decatur and/or Dorsett training facilities. Training is provided by the first-line supervisor or the safety specialist or some combination thereof. The division safety specialists are tasked with ensuring that appropriate required and discretionary safety training has been accomplished.
- In 2007, the Company initiated the SAFESTART program. SAFESTART reminds employees to stop and think about the work task at hand and their state of mind. For example, a poster reminds employees that rushing, frustration, fatigue and complacency can "cause or contribute to these critical errors" such as "eyes not on task," "mind not on task," "line-of-fire" and "balance/traction/grip," which increase the risk of injury. Much of the training associated with this program is conducted by bargaining unit employees.
- Represented employees are keenly aware of the Company's emphasis on safety, but some feel it is being driven by the numbers and take exception to the use of discipline for safety violations. Several interviewees opined that supervisors pay insufficient attention to safety when there is a large work backlog or when they are under emergency storm conditions. These opinions could not be substantiated by interviews with management employees. In general, the bargaining unit employees interviewed responded well to the Utility's recently-initiated the SAFESTART program.
- The Company has in effect a safety policy called "The Rules to Live By." This document embodies work rules that are critical or fundamental to safety work practices and potentially could danger employee health and safety if ignored. "The Rules to Live By" document clearly states that not following these rules will result in immediate progression to Step Four of the five step disciplinary process, which will result in immediate suspension. At the same time, the Company is asking employees to discuss near accident misses so that others can learn. Certain union members indicated they are fearful to present this information because it could result in discipline. The Utility is

making an effort to overcome union fears when talking about near misses, but cannot guarantee that disciplinary action will not be taken as OSHA expects discipline to be given when employees break certain rules. The Company is attempting to develop a plan that meets both objectives.

- The Company exceeds OSHA's annual inspection requirement by performing safety inspections quarterly. Ameren refers to their safety inspection program as Job Behavioral Observations, and its goal is to have first-line supervisors conduct safety inspections at least monthly. For each field inspection, a report of what is observed is completed and entered into a database. Observations include both obvious safety omissions like hardhats, use of wheel chocks, position of the vehicles, etc. and more of electric safety observations like approach distances, voltage and grounding work practices, compliance with Worker Protection Assurance (WPA) work practices, etc.
- Ameren does not supply safety training to their contractors. They contractually require that the contractor comes to them with a viable safety training program in place and can meet the safety requirements for the contracted work.
- Formal safety training includes: 15KV gloving, hazard communications, asbestos, emergency evacuation training, confined space entry, fire extinguisher, first aid/CPR training, PCB & Oil Spill Training, CDL and defensive driver training, plus other programs provided on an annual or periodic basis.
- The figure below shows the recordable injury rate, the restricted duty rate and the LWA rate (lost work days away) for AmerenCIPS between 2005 and 2008 year to date. All three rates result from a comparison of the number of injuries to the number of hours worked and describe progressively the severity associated with AmerenCIPS accident experience.

**Figure 19 - Electric Distribution Operations Accidents**



- From the preceding figure, it can be seen that:
  - The recordable injury rate was relatively flat in 2005 and 2006; and 2007 experienced almost a 30% reduction; the reduced rate is continuing YTD June 2008.
  - The restricted duty rate spiked upward in 2006 and was reduced sharply in 2007, but appears to be trending higher YTD June 2008.
  - The LWA rate has fluctuated with 2005 and 2007 on the high side; YTD June 2008 appears to be trending sharply lower.
- The Company's safety department indicated that Ameren Illinois does not specifically have safety benchmarking data used to compare the Illinois electric operations with other utilities. It does participate and possess benchmark information from the Edison Electric Institute Safety Survey that provides for provide general safety comparisons. This survey includes both Missouri and Illinois Ameren Energy Delivery and consists of gas, electric and corporate Company data and not just Illinois electric distribution operations.

## 5.2.3 Conclusions

### *Training*

Both the apprentice linemen and apprentice substation journeymen training programs are typical of apprentice programs found in the electric distribution industry. The similarity is both in the three-year length of the program, as well as the course content. AmerenCIPS belongs to a National Joint Apprentice and Training Committee and uses their standard templates. Journeyman linemen on an ad hoc basis are utilized to conduct the training. Their selection is based on qualifications as opposed to seniority, helping to assure that they are skilled in current technical requirements, as well as being able to effectively deliver the training.

Throughout the study period, AmerenCIPS organization has hired new linemen apprentices in every year except 2003 and substation apprentices in every year. However, despite these new apprentice additions the linemen workforce between 1997 and 2007 has been reduced by over 26%. In addition, from an in-house technical skills and skill gap perspective, the reduction is even greater due to the length of time required to develop an effective employee. Given the reluctance to place into position and train apprentices in advance of anticipated needs, the Utility will experience difficulties in maintaining in-house technical skills. Assuming there is a desire to maintain the in-house technical competency, the Company should enhance its ability to forecast future staffing requirements and hire accordingly.

AmerenCIPS's approach to utilizing qualified bargaining unit members as linemen training instructors helps assure that they are skilled in current technical requirements, as well as being able to effectively deliver the training.

### *Safety*

Safety, as stated by all levels of management and bargaining unit personnel, is a leading AmerenCIPS objective. Based on our experience, the emphasis placed on safety is consistent with what other utilities are requiring in today's workplace. The Company promotes a proactive SAFESTART Program while maintaining employee accountability. The Company also conducts extensive safety training and inspections.

In contrast to the emphasis on safety, the Company participates in minimal benchmarking to compare itself to other electric distribution utilities. Benchmarking can result in the identification of best practices, which may ultimately present safety efficiency and effectiveness opportunities.

## 5.2.4 Recommendations

- 5.2.1 Improve ability to forecast future bargaining unit employee retirements by annually conducting an informal survey of journeymen linemen and substation mechanics. This

nonbinding survey should ask about the potential retirement plans of those who are within four years of retirement age.

- 5.2.2 Participate in an ongoing safety benchmarking survey with comparable electric distribution utilities, so that best practices may be identified and analyzed, and uncover opportunities for AmerenCIPS to proactively pursue.
- 5.2.3 Re-title the Director—Gas Operations position to reflect his Ameren Illinois electric technical training responsibilities.

## 5.3 Quality Assurance

### 5.3.1 Background

A formalized and documented quality assessment and control process for substations, distribution lines, meter reading and vegetation management is essential to ensure that the construction and maintenance of the system meets specification and safety standards. This is particularly critical where contracted services are employed, as is the case at AmerenCIPS. The quality assurance processes for substations, distribution lines, meter reading and vegetation management are discussed below.

### 5.3.2 Findings

#### **Substations**

- If substation work is contracted out, AmerenCIPS' relay crews will test the equipment before commissioning.
- Substation maintenance work is rarely contracted out, but when it is contracted out, a specific work order is generated and the results are documented in a database.
- Contracted construction inspections are the responsibility of the job engineer, Electric Delivery Technical Services (EDTS) can be invited to assist in conducting the inspection work. Construction engineers also have project midpoint inspection checkpoints where work is halted for the inspection, which includes job quality and conformance to standards and specifications. Construction engineers have a log to capture findings.
- AmerenCIPS linemen conduct most of the weekly substation inspections. The substations group is looking at implementing hand-held computer units (Ameren Illinois-wide) to better automate and capture inspection data for trend and failure analysis.

### ***Distribution Line Work***

- The Quality Assurance Auditor primarily inspects overhead distribution, but also will review some underground installations and some 69 kV and 34.5 kV installations. The Auditor usually audits 15-20 jobs weekly. These construction jobs are either randomly sampled out of DOJM, provided by the local supervisor or samples provided by the engineering group. The Auditor uses a Quality Assurance (QA) checklist of 10-15 items that are most commonly found to be wrong. QA findings are put into a database and reports are sent to division managers and vice presidents. If maintenance items are noted, they are entered into DOJM for scheduling. Inspections are currently limited to construction jobs, and if the QA staff is expanded inspections would also include corrective work. There may be a QA process gap in that lessons learned through this audit program may not be transmitted to the training center for inclusion in refresher courses.
- Line supervisors do spot checking on jobs as part of their NESC and line inspections.
- There is a Quality Assurance Group with two auditors that was initiated in December 2007. Their charter is to inspect construction jobs executed by both in-house and contract crews to review standards compliance and NESC compliance. They inspect significantly less than 10% of the jobs.
- The Operations Supervisor will perform quality and safety checks while in the field, typically only several hours daily.

### ***Metering***

- In metering, contractors are under an incentive program for meter read accuracy.

### ***Vegetation Management***

- Vegetation management is entirely out-sourced. AmerenCIPS uses a 3-pronged inspection process:
  1. The vegetation contractors' management prepares and submits a formal written audit per crews each month.
  2. AmerenCIPS supervisors review these reports and field check 10% of the audits.
  3. AmerenCIPS supervisors conduct monthly drive-by audits of contractor crews to monitor compliance with safety, standards, performance and invoicing.

### 5.3.3 Conclusions

Based on the inspection results described above we conclude; AmerenCIPS has a formal but not completely documented quality assessment and control process for substations, distribution lines, meter reading and vegetation management.

Ameren Illinois has recently created the position of Quality Assurance Inspector and currently has two Quality Assurance inspectors for all of Ameren Illinois. While we applaud this program, we believe that the current number of inspectors is inadequate to perform quality assurance reviews across all three Ameren Illinois companies.

### 5.3.4 Recommendations

- 5.3.1 Establish a formalized documentation process for the quality assessment and control process employed by AmerenCIPS.
- 5.3.2 Increase the number of Quality Assurance inspectors, above the current level of two, to permit a larger sample of the system to be inspected annually for quality.

## 5.4 Distribution System Condition Assessment

### 5.4.1 Background

During the discovery and interview process, we got the impression that maintenance activities may have been less than adequate over the 1995 to present period. Our concern was if maintenance work has not been adequately accomplished over a prior number of years, the condition of the distribution system could be declining. This could necessitate devoting additional resources to remediate existing conditions on the system as well as to assure that the on-going maintenance program is on track and maintenance is being performed in a timely fashion.

#### ***Distribution Overhead Lines***

We developed a random sample of AmerenCIPS' circuits, including worst performing circuits to be visually inspected. This sample was developed using a binomial sample methodology with a 90% confidence level and a 10% error rate, as is typically used in the utility industry to formulate condition assessments. We believe that the results of the resulting visual inspections are representative of the overall AmerenCIPS distribution system. Our inspectors were accompanied by Company engineers and other staff who provided transportation and locating services for the subject facility inspections. We examined a total of 702 poles covering 10 circuits across the AmerenCIPS service area.

We developed and employed a tailored Circuit Inspection Form and the results of the inspections were documented in a database for analysis. For each pole, we visually inspected and recorded the following information:

**Table 10 - Circuit Inspection Methodology**

Inspection Item	Methodology
Location	Roadside or in the right-of-way
Pole Condition	Visual check for damage, leaning and sounding the pole for rot at the butt and at about 4 feet up.
Number of phases	Number
X-Arms	Type and condition
Insulators	Condition
Devices	Type and condition
Conductor/Shield	Condition
Guy/Anchor	Type and condition
Attachments	Type
ROW condition	Encroachment of vegetation along the span from the prior pole to the subject pole

## ***Substations***

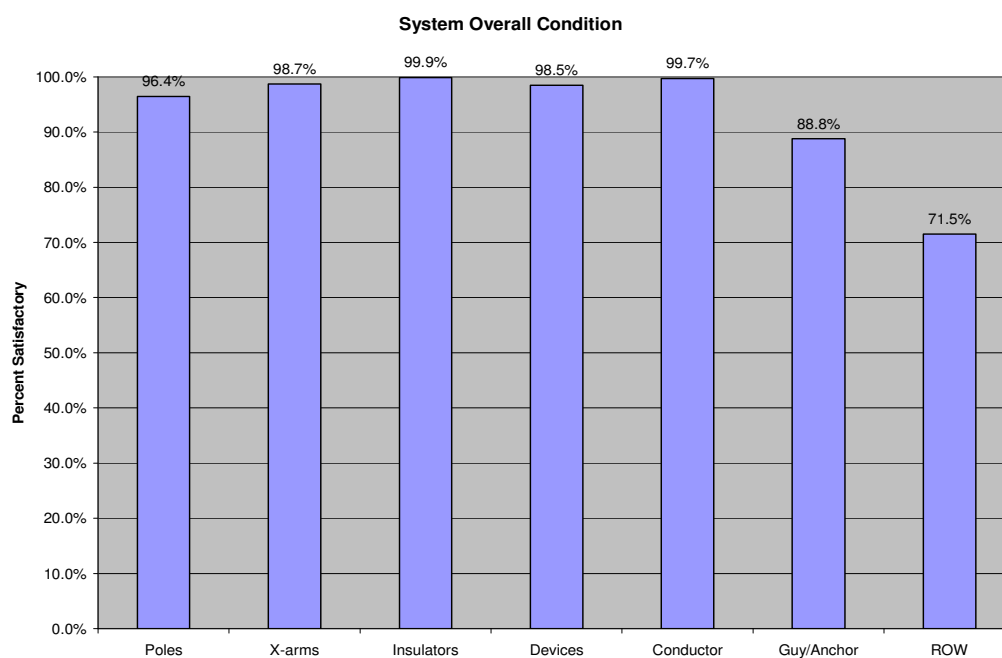
As part of the distribution system inspection process, the inspectors inspected four distribution substations that were within the circuit selections for AmerenCIPS.

## **5.4.2 Findings**

### ***Distribution Overhead Lines***

- AmerenCIPS' distribution system appears to be in good condition electrically and mechanically based on the inspection results shown below.

**Figure 20 - Summary of System Inspection Results**



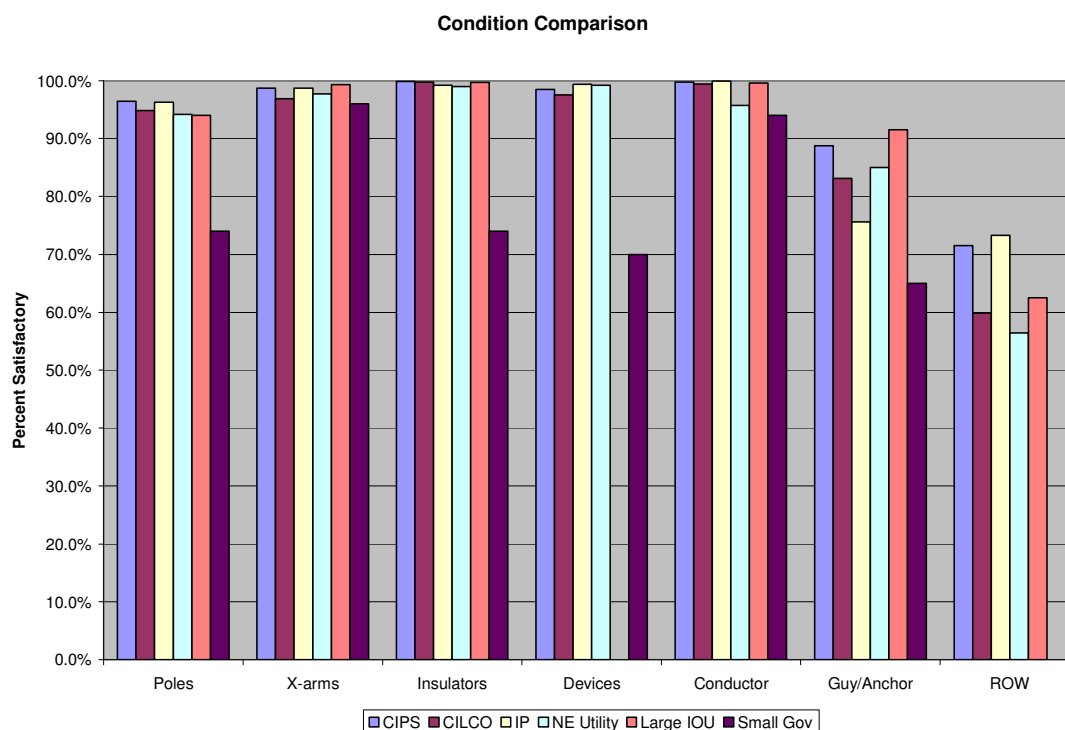
- Details of the inspection results are shown in the table below.

**Table 11 - Details of Inspection Results**

<b>Pole Condition</b>	<b>Count</b>	<b>Percent</b>	<b>Insulator Condition</b>	<b>Count</b>	<b>Percent</b>
0-Satisfactory	677	96.4%	0-Satisfactory	701	99.9%
1-Upper Pole Decay	9	1.3%	1-Contaminated, Residue	1	0.1%
2-Ground Line Decay	10	1.4%	2-Visible Crack	0	0.0%
3-Termite Damage	4	0.6%	3-Broken	0	0.0%
4-Slight Lean (< 15 deg)	11	1.6%	4-Leaning	0	0.0%
5-Severe Leaning (> 15 deg)	0	0.0%	5-Tie Unraveled	0	0.0%
6-Broken	0	0.0%	6-Pin Pull/Pushing Thru Arm	0	0.0%
7-Treated (Wrap, etc)	0	0.0%	7-Pin Broken	0	0.0%
8-C-Trussed	0	0.0%	8-Pin corroded	0	0.0%
9-Adjacent Pole (Old & Needs Removal)	0	0.0%	9-Other	0	0.0%
10-Other	5	0.7%		702	100.0%
<b>X-Arm Type</b>	<b>Count</b>	<b>Percent</b>	<b>X-Arm Condition</b>	<b>Count</b>	<b>Percent</b>
0-Wooden (Single)	374	48.9%	0-Satisfactory	751	98.7%
1-Wooden (Double)	181	23.7%	1-Split	8	1.1%
2-Stand-Off-Metal	1	0.1%	2-Burnt/Rotted	1	0.1%
3-Stand-Off- Poly	0	0.0%	3-Termite Damage	0	0.0%
4-Stand-Off w/ Squirrel Guard	0	0.0%	4-No Braces (on X-arm)	0	0.0%
5-Alley Arm	5	0.7%	5-Failing @ Thru-Bolt	1	0.1%
6-None	201	26.3%	6-Broken	0	0.0%
7-Other - list	3	0.4%	7-Corroded	0	0.0%
	765	100.0%	8-Other	0	0.0%
				761	100.0%
<b>Device</b>	<b>Count</b>	<b>Percent</b>	<b>Device Condition</b>	<b>Count</b>	<b>Percent</b>
0-None	301	22.1%	0-Satisfactory	1031	98.5%
1-Fuse (Cut-Out)	369	27.2%	1-Corrosion, Rust, Pitting	0	0.0%
2-Arrestor	316	23.3%	2-Bushing Broken/Cracked	1	0.1%
3-XFMR	272	20.0%	3-Arrestor - Missing	3	0.3%
4-Capacitor-Fixed	4	0.3%	4-Arrestor - Obsolete	0	0.0%
5-Capacitor-Switched	1	0.1%	5-Arrestor - Long Lead	0	0.0%
6-Regulator (No.)	0	0.0%	6-Arrestor/Failed/Damaged	4	0.4%
7-Recloser/Sectionalizer	22	1.6%	7-Hardware Hanging	0	0.0%
8-Disconnects-Single Blade	0	0.0%	8-XFMR Disc'd (Needs Removal)	3	0.3%
9-3-Phase Tie Switch (Type)	74	5.4%	9-Riser Pothead/Connection Problem	0	0.0%
10-Riser on Pole	0	0.0%	10-Riser w/o Ventilation	1	0.1%
11-Other - List	0	0.0%	11-Other	4	0.4%
	1359	100.0%		1047	100.0%
<b>Conductor Condition</b>	<b>Count</b>	<b>Percent</b>	<b>Shield Wire Condition</b>	<b>Count</b>	<b>Percent</b>
0-No Visible Problems	702	99.7%	0-Satisfactory	391	55.5%
1-Conductor Sag	0	0.0%	1-No Shield Wire	311	44.2%
2-Tight Phase Separation	0	0.0%	2-Shield Wire < 45 Degrees	0	0.0%
3-Poss Clearance Violation	2	0.3%	3-Shield Wire > 45 Degrees	2	0.3%
4-Clamps Worn/Loose	0	0.0%	4-Corrosion	0	0.0%
5-Ties Unraveled	0	0.0%	5-Broken Strands	0	0.0%
6-Pitted, Corrosion	0	0.0%	6-Other - List	0	0.0%
7-Strands Broken	0	0.0%		704	100.0%
8-Some Melting	0	0.0%			
9-Guy, Other Contact	0	0.0%	<b>Guy/Anchor Condition</b>	<b>Count</b>	<b>Percent</b>
10-Ground Wire Cut or Missing	0	0.0%	0-Satisfactory	340	88.8%
11-Other	0	0.0%	1-Guy Wire Strands Broken	2	0.5%
	704	100.0%	2-Guy Rusted	15	3.9%
			3-Anchor-Tight	0	0.0%
<b>ROW Condition</b>	<b>Count</b>	<b>Percent</b>	4-Anch - Loose or Broken	0	0.0%
0-Clear (No trees or Underbrush)	352	50.1%	5-Guy Missing or Deteriorated	0	0.0%
1-Trees/Limbs >8'	150	21.4%	6-Slack Span on Stub	0	0.0%
2-Trees/Limbs 3>d<8'	115	16.4%	7-Guard Defective/Missing	13	3.4%
3-Trees/Limbs < 3'	44	6.3%	8-Other	10	2.6%
4-Trees/Limb Contact	33	4.7%			
5-Danger Tree	0	0.0%	<b>Attachments</b>	<b>Count</b>	<b>Percent</b>
6-Underbrush w/in 3'	1	0.1%	1-Telephone	185	26.4%
7-Vines, Moderate	1	0.1%	2-CATV	227	32.3%
8-Vines, Severe	5	0.7%	3-Unknown	2	0.3%
9-Other	0	0.0%	4-Pole Extender	0	0.0%
			5-Secondary	316	45.0%
			6-Service	385	54.8%
			7-Street Light/Spotlight	166	23.6%
			8-Other	3	0.4%
				702	100.0%

- AmerenCIPS' overhead electric distribution system condition compares favorably with several other utilities<sup>34</sup> for which we have conducted condition assessments.

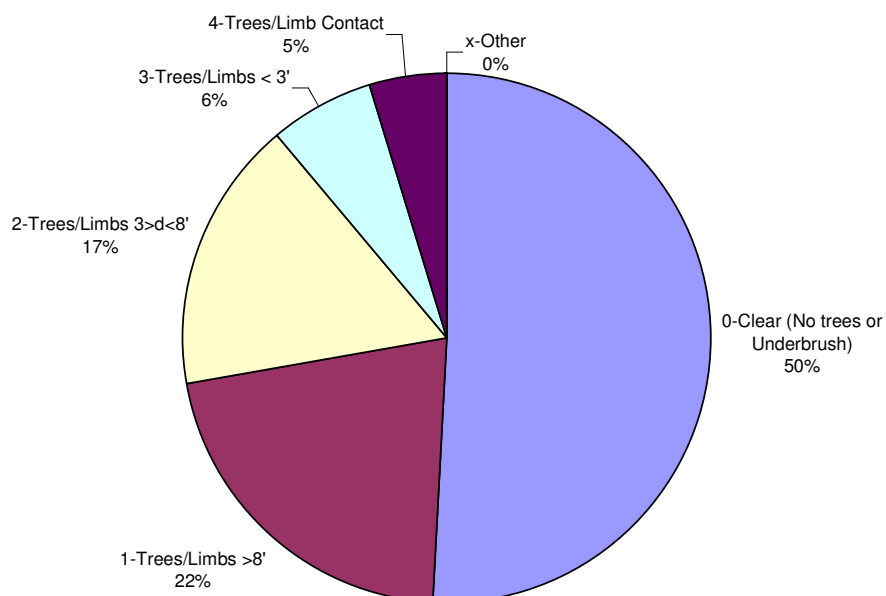
**Figure 21 - System Condition Comparison**



- Vegetation encroachment is not a concern (as illustrated in the diagram below).

<sup>34</sup> The New England Utility is mid-sized, the Large IOU and the Small Government utilities cannot be identified as per contractual confidentiality agreements.

**Figure 22 - Status of Vegetation Encroachment**



- 71.4% of the ROW is clear of vegetation or with vegetation beyond 8 feet; this is above results for other medium to large Investor Owned Utilities (at 62.5% or more).
- Additionally, based on our physical inspection, only 11% of the circuits have vegetation in direct contact with the primary conductor or within 3 feet, posing an immediate risk. This can be considered normal given a four-year trim cycle since some of these circuits may be at or near the end of the cycle and ready for trim. The overall ROW condition is depicted in the following:

**Table 12 - ROW Condition**

ROW Condition	Percent	Risk Factors
0-Clear (No trees or Underbrush)	50.1%	
1-Trees/Limbs >8'	21.4%	Risk factor in 3-5 years
2-Trees/Limbs 3>d<8'	16.4%	Risk factor in 1-3 years
3-Trees/Limbs < 3'	6.3%	Immediate Risk Factor
4-Trees/Limb Contact	4.7%	
x-Other	0.0%	

## Distribution Substations

- In general, the condition of the distribution substations appeared adequate. The inspector's impression ratings ranged from good to excellent. In some cases, access gate grounding was inadequate. The substation yards were clean and well maintained, but there were a few exceptions. Details of the inspections are shown in the following table.

**Table 13 - Distribution Substation Condition**

Sub ID	Name	# of Xfms	Oil Leaks	Fence	Fence grounds	Gate grounds	Overall Appearance	Comments
Y89	East Taylorville	1	0	Fair	Yes	Yes	Good	Vines in fence, fence grounds under grade, gate grounds by hardware only, need straps
	Herrin West	1	0	Good	Yes	No	Good	Well maintained
T11	Whitehall	2	0	Good	Yes	No	Excellent	Well maintained, one gate ground broken off
X57	Effingham	2	0	Good	Yes	Yes	Good	Clean yard
V41	Quincy/Adams	1	0	Good	Yes	Yes	Excellent	Well maintained and clean

## 5.4.3 Conclusions

AmerenCIPS' overhead distribution plant appears to be in good mechanical and electrical condition.

While AmerenCIPS is on a 4-year vegetation trim cycle, we would expect to see some (15% to 20%) of limbs within 3 feet of the conductor or in contact; and at 11% it appears to indicate that the Company's trim program may be somewhat ahead in execution.

AmerenCIPS' distribution substations appear to be in adequate electrical and mechanical condition; however, gate grounding should be examined during regular inspections.

## 5.4.4 Recommendations

- 5.4.1 AmerenCIPS should review its substation inspections to assure the adequacy of gate grounds.

## 5.5 Call Center

### 5.5.1 Background

Ameren has integrated its customer service function into a single department and has created a virtual call center with locations in Peoria, Pawnee and Decatur that services all the Ameren Illinois service territory. Ameren has both electric and gas customers, and Ameren Customer Service Representatives (CSR) can answer calls from all customer types and service areas. There are four groups within the call center: General Residential, Solution, Monitoring and Business. There is a brief description of the Solution, Monitoring and Business functions below.

The call center uses numerous shifts to cover call volume. Since the call centers has the ability to answer calls from all Ameren customers, there is 24-hour coverage with Peoria and Decatur employees covering the times when the AmerenCIPS call center is closed. There are three toll-free numbers for customers to call, and these are routed to the call center automated call distributor. The call center has participated in Ameren Emergency Operation. The Company has numerous major technology enablers that help the call centers perform their mission. The call center has been J.D. Power and Associates certified for providing “An Outstanding Customer Service Experience.”

The Solution Center aids in specific functions of the Contact Center. The main objective of the Solution Center is to perform back-office off-the-phone tasks that can significantly impact Customer Service. The designated tasks have centralized processes that define the roles and responsibilities of the Solution Center employees.

The Monitoring Group is responsible for the Quality Assurance Program, which provides consistent and unbiased feedback to employees in a timely manner. The main objective of the Quality Assistant is to assist with the quality monitoring process. Monitoring is viewed as a way to improve the relationship between the employee, the customer and Ameren.

The Business Group responds to all customer inquiries, both verbal and written, in a manner that strives to assure that customers are treated with the utmost concern, respect, courtesy and sensitivity, while also treating each customer fairly and equitably.

### 5.5.2 Findings

#### **Staffing<sup>35</sup>**

- The call center is staffed with approximately 55 employees. AmerenCIPS uses Manpower as the way to source new employees. Each Manpower staff undergoes 17-25 weeks of training, which serves as the screening process enabling the call center to

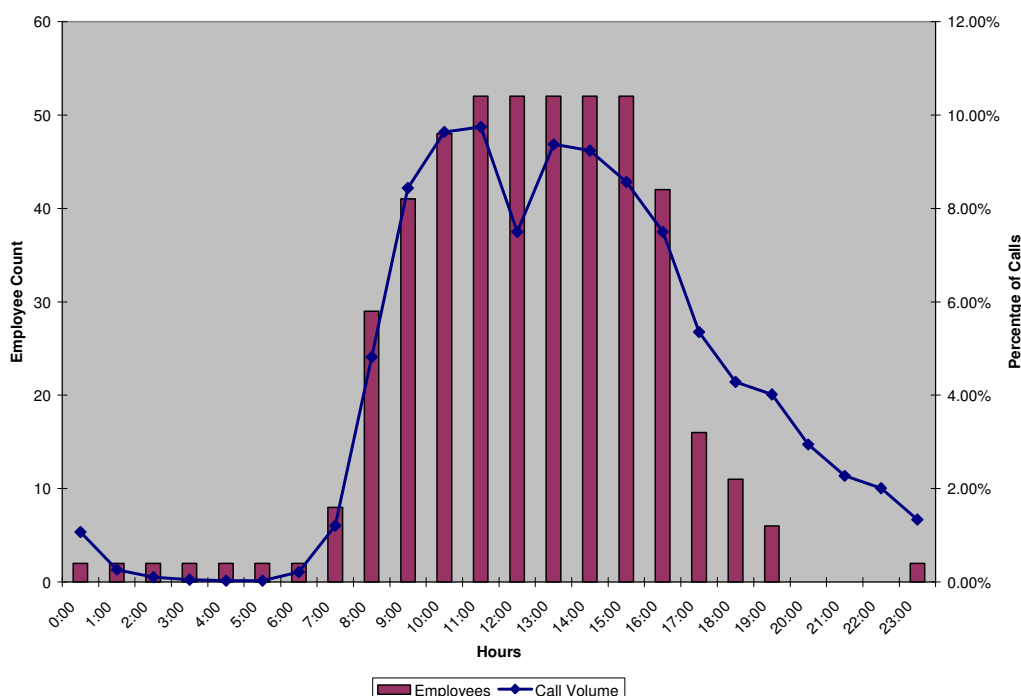
<sup>35</sup> DR-111 DR-110 DR-082

make an offer of permanent employment. AmerenCIPS uses a lab environment for training. AmerenCIPS has six home agents with plans to add 6 more, which are the first agents used during emergencies. In 2002, AmerenCIPS started using an outsourced call center in North Carolina, which generally handles delinquent accounts. AmerenCIPS call center has experienced an average turnover rate of 19.6% annually, which is in line with industry standards.

### **Scheduling<sup>36</sup>**

- The first shift begins at 6:55 a.m. and AmerenCIPS brings on additional CSRs every 30 minutes thereafter. AmerenCIPS has an electronic workforce management system, call center optimization software that looks at half-hour increments and historical call patterns to determine the total number of FTEs needed and to determine shift assignments but prefers to make incremental adjustments to staff based on known issues.
- We analyzed how the CSR's shifts were scheduled to determine the adequacy of staff during the peak call times.

**Figure 23 - Call Center Hourly Staffing**



<sup>36</sup> DR-064

- As can be seen in the above figure, the addition of CSRs is consistent with the typical daily hourly increase in call volume.<sup>37</sup>

## **Technology**<sup>38</sup>

- The Company uses numerous main systems to enable the call center personal to better serve the customer. These systems are integrated with other Company systems such as meter reading, outage management and service order. Below is a brief description of each system.

**Customer Information System** – Referred to internally as CSS (Customer Service System). This system is Accenture's Customer System that was originally installed in 1998 and was extensively modified to support internal and mandated regulatory needs (such as Illinois Deregulation). The system is maintained in house and provides the following (not limited to) functionality: Active/Final Collections, Bankruptcy, Budget Billing, Bill Presentation/Printing, Billing, Cancel Adjust/Cancel Rebill, Cash Processing, Charge Offs, Collection Agencies, Collection Arrangements, Orders (Connects, Cuts, Disconnects, Investigations, etc.), Deposits, Deregulation, Dollar More, DSS Billing (Dereg), EFT, Energy Assistance includes eLI HEAP, GL/Revenue Reporting, Landlord Agreements, Lighting, Marketing Campaign, Medical Equipment Registry [MER], Non-service accounts, Payment Agreements, Refunds, Revenue Protection, Summary Billing, Taxes, USMS Billing, etc. The CSS system is interfaced with OAS, GIS, DOJM, eCustomer, etc. CSS information is also viewable (internally on our intranet) through the eCSS system. Numerous other smaller systems and software are utilized within CSS to accomplish its operations and functions.

**VRU** – Voice Response Unit. This internal system accepts customer calls, prompts them to determine the nature of their call and either completely handles the call or directs the call to a customer service rep. Calls completely handled within the VRU include reporting outages, obtaining basic account information (balance and payment info), etc. An external vendor managed VRU system is also engaged when call volume exceeds specified levels. The vendor VRU handles high volume outage calls and passes them back to the OAS system.

<sup>37</sup> Teletraffic Modeling for Personal Communications Services \_Derek Lam, Donald C. Cox, Jennifer Widom Electrical Engineering & Computer Science Depts. Stanford University

<sup>38</sup> DR-024

**CSS Data Warehouse** – CSS data was recently extracted into this data warehouse. The Oracle Answers-based system is utilized to analyze customer revenue and usage information.

**eCustomer** – This system allows customers to perform transactions on their accounts through [Ameren.com](http://Ameren.com). The system is interfaced with CSS and provides the following functions: view bill, pay bill online, view account activity and payments, change email address, change phone numbers, change billing address, turn on service, turn off service, Request copy of bill, signup for budget billing, stop budget billing, etc. The system also provides landlords the ability to manage their service locations.

**High Volume Overflow Application (HVOA)** – Stericycle phone lines are integrated into Ameren's overall Call Center phone line design such that calls automatically overflow to the Stericycle IVRs during high volume periods. This is an application that receives customer calls when internal Ameren IVR and customer contact center lines are full. Customer can log a power outage call, receive an estimated restoration time for an existing outage, and be transferred to a contact center representative for emergency orders. Call overflow capacity is 15,000 calls per hour through summer 2007, and 30,000 calls per hour after summer 2007.

## **Performance**<sup>39</sup>

- Customer contact call center performance is typically evaluated on the basis of key measures such as:
  - Average Speed of Answer (ASA)
  - Service Level (%)
  - Rate of Abandoned Calls (%)
- Each of these measures is highly susceptible to the influence of factors such as the number of customer service representatives available to handle calls and the average or longest duration of typical calls. Both of these factors are dependent on the circumstances and events being encountered. During normal operations, the number of customer service representatives may or may not be adequate, depending on the time of the event, the day(s) on which it occurs or the duration involved. Similarly, it is not unusual for the duration of calls to be longer during emergency situations as

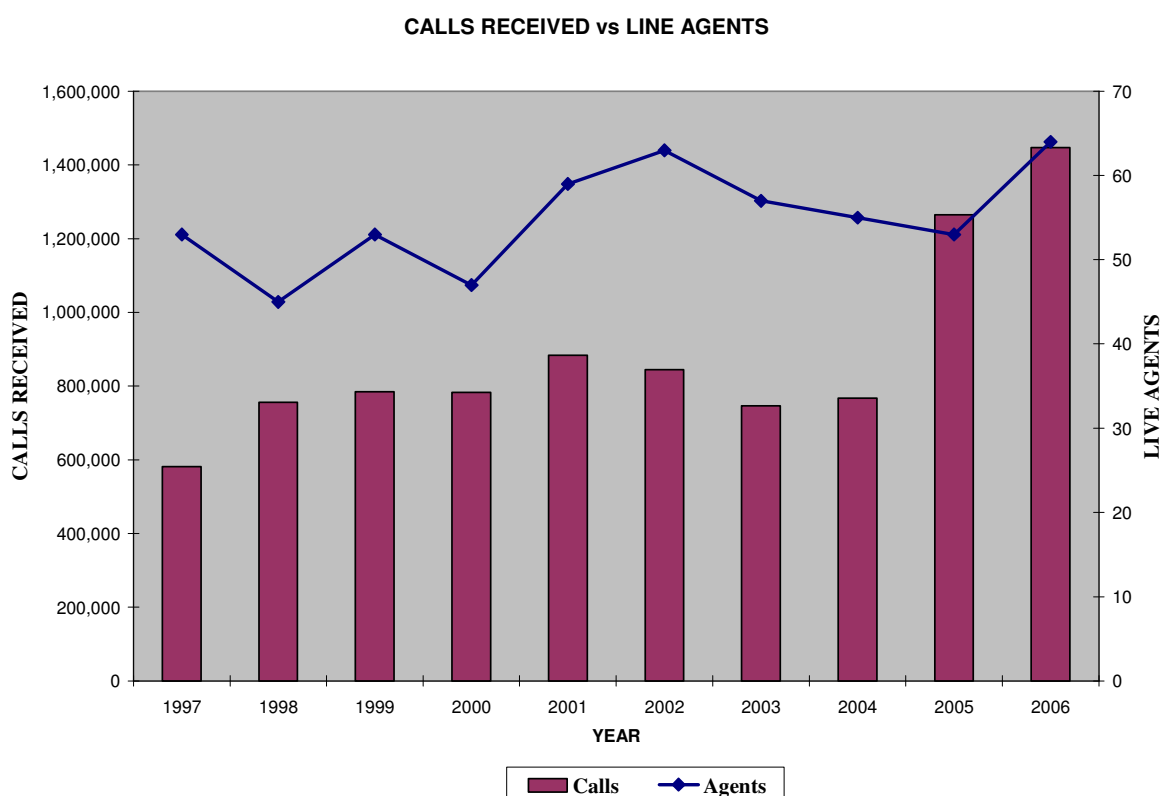
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<sup>39</sup> DR-062

explanations tend to take longer than under routine conditions. We have excluded the automated agent so we can evaluate the performance of the live agents.

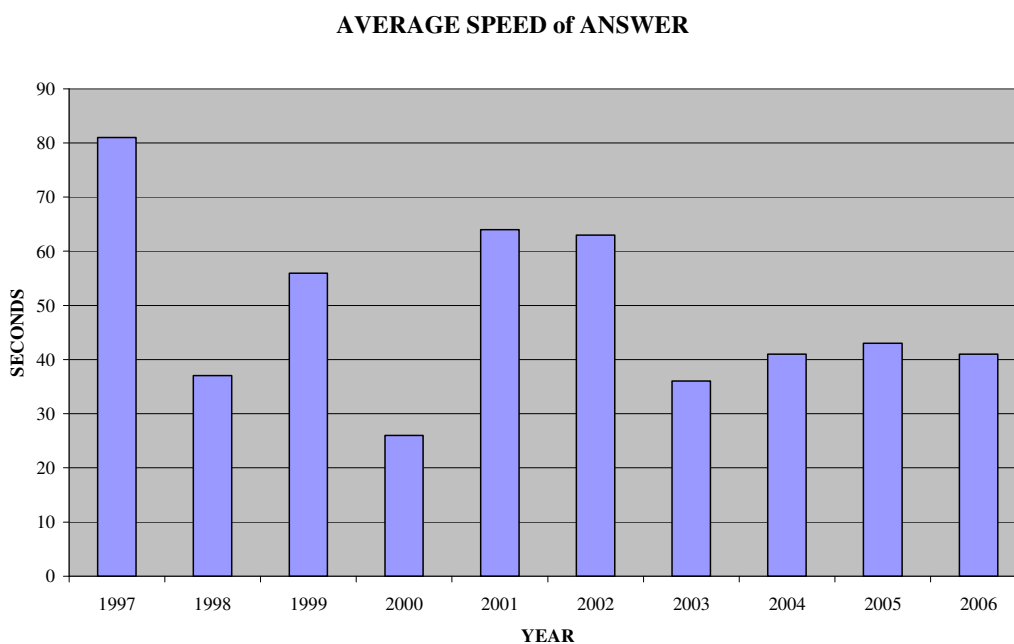
- The Company has set goals for:
  - ASA—calls answered in 60 seconds or less.
  - Service Level—AmerenCIPS does not track service level, and they expect every call to be answered in 60 seconds or less.
  - Abandonment Rate—The number of calls that were not answered.

**Figure 24 - Total Calls Received by Live Agents**



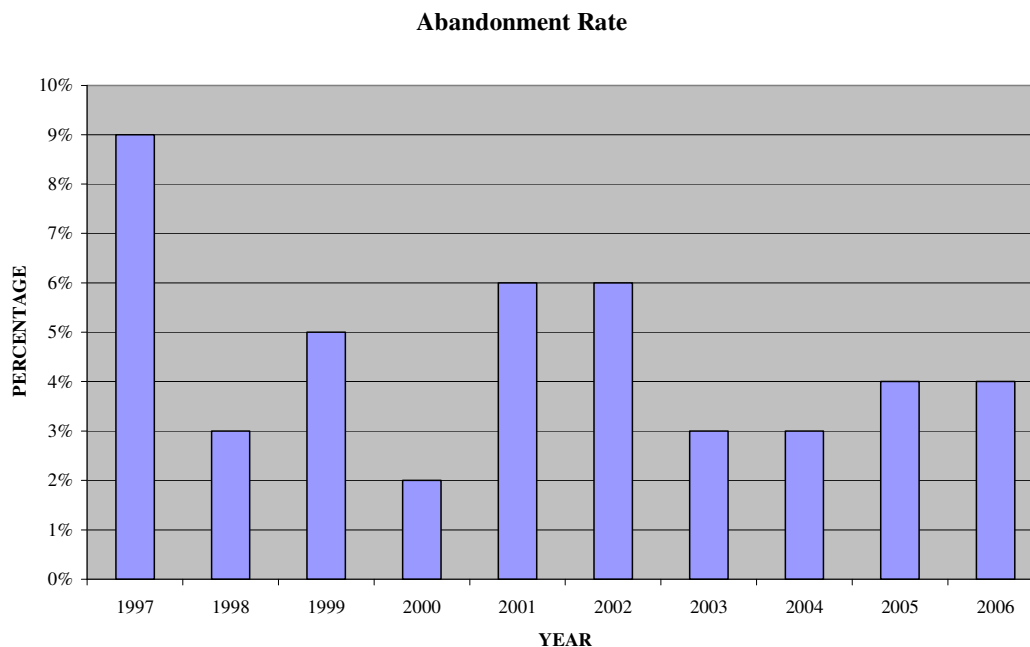
- As the total number of calls received has increased so has the number of live agents.

**Figure 25 - Live Agent Average Speed of Answer**



- The average speed of answer has been below the Company's goal of 60 seconds in 7 of the 10 years and is on a downward trend.
- Service level for the Company is expected to be 100% of the calls answered within 60 seconds; the Company has matched or exceeded its goal in 7 of 10 years.

**Figure 26 - Live Agent Abandonment Rate**



- The abandonment rate is decreasing but has met the industry average for utility inbound call centers of 3.5%<sup>40</sup> 4 of 10 years. They have met the state mandated levels of 10%<sup>41</sup> for all 10 years.
- AmerenCIPS participates in three benchmark studies:<sup>42</sup>
  - Market Strategies International, Inc.
  - J.D. Power & Associates
  - Customer Contact Index
- The Company has received a satisfactory rating in each of the studies and has shown continued decrease in customer satisfaction. Below is the result of the studies.

<sup>40</sup> Purdue University Call Center Benchmark Study @ 2006

<sup>41</sup> DR-028

<sup>42</sup> DR-083

**Table 14 - Market Strategies International Overall Customer Satisfaction**  
**Ameren AMERENCIPS**  
**0-10 scale, total satisfied scores = 6-10**

Year	Residential
2005	8.29
2006	8.06
2007	6.77

**Table 15 - J.D. Power & Associates Overall Customer Service Index Score**

Year	Residential Electric	Business Electric <sup>3</sup>
2003	98 (old); 795 (new)	n/a
2004	102 (old); 752 (new)	102 (old); 657 (new)
2005	99 (old); 766 (new)	104 (old); 674 (new)
2006 <sup>1</sup>	686	648
2007 <sup>2</sup>	602	655

1. In 2006, J.D. Power & Associates moved from giving index scores based on a centered-to-100 scale, to giving scores based on a maximum 1000 point scale, in order to provide improved reporting and trending capabilities. Whereas the "high" scores on the centered-to-100 scale were normally in the 110-120 range, the "high" scores on the maximum 1000 point scale typically range from 690-770. Due to the change, some index scores from prior years were recalculated using the maximum 1000 point scale, in order to make an "apples-to-apples" comparison.
2. In 2007 Ameren only reported the J. D. Power & Associates numbers for Ameren Illinois and not individual companies.
3. The Business Electric customer service index is for Ameren Illinois not the individual companies.

**Table 16 - Customer Contact Tracking Study**  
**Overall Customer Satisfaction with Electric Utility**

Year	Overall Satisfaction
2004	90%
2005	89%
2006	88%
2007*	82%

\* In 2007 the Customer Contact Index was reported for Ameren Illinois and not individual companies.

### 5.5.3 Conclusions

The Company staffs the call center in accordance with the flow of call volume and uses technology to enhance the call center's ability to service customers in an effective and efficient manner. The technologies employed include: Customer Service System, High Volume outage Call Answering System, Integrated Voice Response Unit System, Electronic Workforce Management & Real Time Adherence System, Automatic Call Distributor, Call Quality Monitoring & Survey System, and Computer Telephony Integration System. AmerenCIPS' call center internal goals and KPI are satisfactory and increasing indicating that the center is managed in an effective and efficient manner. AmerenCIPS' call center in the last five years has seen a decrease in customer satisfaction surveys conducted by Market Strategies International, Inc, J.D. Power & Associates, and Customer Contact Index. This could be a result of issues such as multiple storms and/or rate increases which is beyond the direct control of the call center. As noted in the Market Strategies 2007 report,<sup>43</sup> "The influence of electric rate increases and storm outages together is also being measured in the growing negative perceptions of Ameren's customer service processes, including performance of employees, general accessibility, and billing. All have experienced significantly declining performance in total positive response compared to one year ago." And "The rate increases are mentioned prominently by more than one-half of customers as the primary reason behind their unfavorable impressions of Ameren in 2007."

### 5.5.4 Recommendations

None

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<sup>43</sup> DR-083

# Appendix A

## List of Recommendations

Section	No.	Recommendation
Operations & Maintenance	5.1.1	Ameren should update the Open Position Action Plan annually to continue to reflect the workforce needs as specified in the Towers Perrin Work Force Projection Study. Once established, the Open Position Action Plan should be aggressively pursued to increase the electric field workforce.
	5.1.2	Ameren Illinois should articulate and implement a staffing strategy that promotes consistent in-house and outsourced worker utilization between various divisions and operating centers.
Training & Safety	5.2.1	Improve ability to forecast future bargaining unit employee retirements by annually conducting an informal survey of journeymen linemen and substation mechanics. This nonbinding survey should ask about the potential retirement plans of those who are within four years of retirement age.
	5.2.2	Participate in an ongoing safety benchmarking survey with comparable electric distribution utilities, so that best practices may be identified and analyzed, and uncover opportunities for AmerenCIPS to proactively pursue.
	5.2.3	Re-title the Director— Gas Operations position to reflect his Ameren Illinois electric technical training responsibilities.
Quality Assurance	5.3.1	Establish a formalized documentation process for the quality assessment and control process employed by AmerenCIPS.
	5.3.2	Increase the number of Quality Assurance inspectors, above the current level of two, to permit a larger sample of the system to be inspected annually for quality.
Distribution System Condition Assessment	5.4.1	AmerenCIPS should review its substation inspections to assure the adequacy of gate grounds.

# Appendix B

## Background

Every electric utility is expected to extend its service to meet the needs of a growing population. Power is needed to be provided in a reliable, safe, and timely fashion. To maintain high standards of service quality and safety, utility managers traditionally have opted for the control of an in-house work force. As a result, many utilities did not have to rely on others to provide support to its staff or rely on others to meet its customers' needs.

In view of regulatory reform and restructuring, many regulated distribution utilities developed strategies to shift risk, reduce costs, and refocus attention on core functions. Core functions are the tasks the utility and its in-house workforce perform best. Utility management decisions to outsource raise questions about the relationships between the distribution utility and its employees, the external service providers, the regulators and the ultimate customer. This report focuses on the relationship between the distribution utility, its workforce and customers.

Outsourcing can be defined as creating a long-term, results-oriented relationship with an external service provider for activities traditionally performed within the Company. Usually the term "outsourcing" applies to a complete business process, where some degree of managerial control and risk are shared by the service provider. This compares to the relatively straightforward procurement of goods or services where support is rendered, but the Company continues to assume the risks and takes management responsibility for the requested service.

## Outsourcing Philosophy

Essential distribution functions include distribution system planning: the construction, operation, and maintenance of the distribution circuits and substations; connection of new residential, commercial, and industrial customers; and the monitoring and emergency restoration of the distribution system. Most utilities contract out a portion of construction and maintenance of the distribution system, including functions like tree trimming and other right of way maintenance as well as distribution line and substation construction. All essential distribution functions are potential candidates for outsourcing. The business benefits that can be achieved through outsourcing are well documented and have been proven by past experience, both within and outside the utility industry. These benefits include:

- Cost savings are typically achieved by lower labor costs, increased productivity, and economies of scale delivered by an outsource service provider.
- Performance improvement is generally delivered through the use of technologies and business processes that may be better than those employed by the utility, and where the

service provider can invest and focus on functions that are core to its business, but not core to the utility that chooses to outsource them.

- Increased flexibility/scalability is provided through contract terms that support different levels of business activity, allowing costs to fluctuate with changing volumes of work. This is a key benefit for utilities with fluctuating activity volumes.
- Access to innovation and best practices is made available by the service provider whose primary business is to support specific business functions. This focus allows them to build expertise and access a broader market of clients, enabling them to identify and leverage good ideas from a wide base of exposure.
- Access to a labor force is supplied by a service provider who focuses on specific functions, hires resources specifically for these functions, and provides greater career development opportunities associated with the performance of a specific type of work, may lead to enhanced efficiencies.

At AmerenCIPS, outsourcing has primarily sought increased flexibility in addressing fluctuating workload volumes and subcontracting of lower skilled work. Driven by the need to maintain in-house knowledge of the distribution and transmission system and the desire to have first responders be Company staff to ensure quality service and help preserve brand recognition, distribution system contractors are primarily used to fill workload peaks and perform lower skilled work. Currently, about 8% of AmerenCIPS' distribution system line work is outsourced.

This approach and level of outsourcing represents a moderate amount from our experience, and places certain obligations on the Utility's management as well as impacts on the Utility's workforce. Management must ensure that the quality of the work completed is consistent with customer service standards, that the cost of the work is reasonably similar to what the work would cost if were performed by the in-house staff, and that high quality customer service is provided, while the workforce may see a reduction in the total number of employees and a reduction in the breadth of job skills. Unions may attempt to erect barriers to outsourcing through their negotiated labor agreements by seeking language which may prohibit or greatly limit the Company's ability to outsource. In addition, unions may seek to gain support for their position by using their political influence concerning job loss.

# Appendix C

## Organized Labor

This appendix presents an overview of the events that occurred during the study period which have helped to shape organized labor at AmerenCIPS. We first list the extensive organizational changes and then the more typical utility technological enhancements that have taken place. We then briefly review the history of outsourcing and the type of work activities AmerenCIPS contracted. Finally, we will highlight the subcontractor contract language contained in the Company's agreement with its largest union IBEW Local Union 702; and trace how the numbers concerning the employment levels to be used in the article dealing with subcontracting were continuously reduced through negotiations.

## Events Impacting Workforce Employment

Over the study period, AmerenCIPS employees were impacted by mergers, industry restructuring, and organizational changes. In addition, the workforce was directly affected by numerous material, equipment and automation changes.

A chronology of major events impacting the workforce included:

- 1995: CIPS was organized as a traditional utility with gas and electric operations and generation; and consisted of 2419 utility employees.
- 1995-1997: CIPS underwent a business process reengineering effort that resulted in three divisions reorganized to eight regions, elimination of the superintendent positions with first-line supervisors directly reporting to regional managers, and the offering of a voluntary separation package for management.
- 1997: Ameren Corporation was created by the merger of CIPSCO Inc. (parent of Central Illinois Public Service Co.) and Union Electric Company; certain CIPS corporate functions were centralized in St. Louis.
- 1998: All 23 CIPS district offices were closed to public traffic with the opening of the customer contact center in Pawnee.
- 1999: The voluntary separation package, first offered in 1997, and a hiring freeze reduced Company employment to 2000.
- 2000: All CIPS generation facilities were transferred to an unregulated subsidiary.
- 2002: A voluntary retirement package was offered to Ameren management employees resulting in a 550 employee reduction.

- 2003: Ameren Corporation purchased CILCO; resulting in the co-mingling of AmerenCIPS and AmerenCILCO employees.
- 2003: AmerenCIPS forestry employees were required to bid to other craft jobs or reduced through attrition.
- 2005: Ameren transferred its Union Electric Illinois electric and gas distribution and transmission assets to AmerenCIPS.
- 2005-2006: Ameren acquired Illinois Power resulting in the establishment of seven divisions and the co-mingling of AmerenCIPS and AmerenIP employees.

Throughout the study period, various material, vehicle, equipment and automation improvements were made. Some major improvements included:

- Material handling bucket trucks, track type trenchers, radar fault detectors, etc.
- Increased use of directional drilling by contractor crews as an alternative to open trenching.
- Contact center communications system
- Automated mapping and customer order system
- Processing scheduling of service personnel utilizing mobile data terminals
- Mobile data terminals and cell phones
- Upgrade in contact center communications system
- Outage assessment system including managing of daily service orders
- Planning and prioritization system

## **Outsourcing History and Activities**

Prior to 1996, each case of outsourcing was discussed separately unless it involved emergency response. Types of projects that would be customarily outsourced would include: line clearance, transmission rebuilds and new construction, large distribution projects, janitorial services, miscellaneous building repair and facilities maintenance and automotive services. After the 1996 negotiations, outsourcing took place more frequently based on the criteria detailed in the next section of this appendix, titled Labor Agreement Contractor Language.

Subsequent negotiations continued to reduce the bargaining unit employment level required to be met before contracting could take place. In 2007, the Company achieved major outsourcing concessions which included continued reductions in the levels of employment and elimination of the need to offer over time before contracting. In addition, the Company has increased the use of contractors for activities that do not require the higher skill levels possessed by journeyman linemen, relay technicians and substation journeymen. Typical linemen-related lower skilled work that has been outsourced includes: meter reading, underground line locating and clean up after construction completion. Similarly, lower rated substation related work that has been moved to contractors includes: foundation construction, fencing repair and installation, grounds maintenance, etc.

AmerenCIPS has also negotiated a sharing of what had been traditionally considered electric work with its gas operating personnel. Work activities that can be performed by either disciplined include: electric facility locates, electric disconnect/reconnects an electric succession reads.

In the meter reading area, the number of in-house meter readers has been reduced in anticipation of the adoption of automated meter reading (AMR). By replacing meter reading vacancies with contractors, the transition to an AMR environment should ultimately have less impact on the workforce.

## **Labor Agreement Contracting Language**

The bargaining unit employees of AmerenCIPS are members of three IBEW Union Locals. IBEW Union Local 702, the largest Company union, represents employees in the following areas: Mattoon, Tuscola, Gilman Paxton Effingham, Robinson, Olney, North Pana; Great Rivers: Quincy, Macomb, Carthage, Havana, Petersburg, Beardstown, Pittsfield, Whitehall, Virden, Jerseyville and Shawnee: Marion, Carbondale, Benton, Harrisburg, Anna. IBEW Local Union 649 represents the employees located in the Alton operations center. Effective with the transfer of Ameren's Union Electric Illinois distribution and transmission assets to AmerenCIPS in 2005, IBEW Local 309 represents employees in East St. Louis.

The section of the IBEW Union Local 702 labor agreement between the parties concerning contracting of work is Article I Section 1.03. In the 1996 agreement, this article basically states that (1) the Company will fully utilize the internal workforce to meet the labor needs of the business with the goal of providing employee job security and competitive wages; (2) beyond major projects customarily contracted out the Company would (a) not contract if it resulted in laying off regular employees, (b) required an employee to relocate to another headquarters, (c) force an employee to accept a lower rate of pay, (d) ensure that no employees performing the work to be contracted have been laid off in the last six months, and (e) expressed the intent that the workforce would not be reduced through attrition to allow for the expansion of

subcontracting by agreeing to July 1, 1996 employment levels; (3) before deciding to contract out the work the Company with meet with a union representative to determine if the work can be performed by Local 702 employees, by using a reasonable amount of overtime within the timeframe required; (4) The Company would designate a local supervisor employee to act as subcontracting coordinator; (5) Company would not contract out work unless the contractors employees receive at least equivalent wages and benefits, and in addition express that the intent of the parties was not to excuse or restrict the type of work currently being subcontracted or increase the cost of the work to the company.

In the 1999, the parties amended the agreement in article 1, section 1.03, (1) by establishing a joint committee of Company and IBEW local Union 702 to periodically meet and review costs of performing work on the Company's facilities. In addition, both parties agreed to negotiate further, if the review demonstrated the need to adjust outsourcing or internal work practices.

In 2003, a side letter agreement regarding contracting was reached. The agreement modified the employment levels specified in (2.e) above were reduced and cautioned that during the life of the labor agreement the numbers may be further reduced due to budgetary or other economic conditions.

In 2007, contract negotiations resulted in a further reduction of the employment levels specified in the 2003 side letter agreement. In addition, negotiations eliminated the need to offer overtime before contracting; specified that the Company and union did not need to formally meet, just notify; expanded the work that could be contracted without paying the prevailing wage; could contract certain work to nonunion labor, for example during emergencies, gas employers when properly trained could do electric disconnects.

The table below summarizes the specified employment levels by specific electric worker classification.

<b>Classification</b>	<b>1999</b>	<b>2003</b>	<b>2007</b>
*Journeyman Linemen	260	232	208
Substation	22	22	19
Troublemens	17	17	15
Meter Journeyman	13	13	12
Relay	7	7	7

\* includes journeyman linemen, foreman and apprentices

The labor agreement contracting labor discussion specifically focused on IBEW Union Local 702 labor agreement because its agreement had the most restrictive outsourcing language and because it is by far the largest AmerenCIPS union. For the Company's other two unions, Locals 649 and 309 there are no employee level restrictions, no overtime requirement or formal

notification of outsourcing work obligation. Basically, the only outsourcing restriction is the Company cannot lay off its employees if it is subcontracting.